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TECHNICAL EDUCATION.

On another page will be found a most important lecture on Technical Education delivered by Mr. Chatterton before the members of the Presidency College Literary Society. The lecture must be considered important for many reasons. At the present time, Government, on all sides, is being urged to do something definite for Technical Education. Natives, as well as Europeans, seem to think that, if India is ever to become a self-supporting country depending on successful agriculture, and on its own manufactures, Government must take the initiative, and establish Technical Schools for the purpose of teaching the scientific principles underlying these industries. The lecture too derives a great deal of importance from the fact that Mr. Chatterton himself is the product of a Technical College, having spent 4½ years at the Technical College of the City and Guilds of London. He was, therefore, able to speak with authority both as to the best methods adopted by Technical Schools, and to the actual training and results of their teaching. The meeting was also fortunate in having the views of so successful

a manufacturer as Robert Orr, the senior partner of Messrs. Orr and Sons, whose skill and workmanship have a great reputation, wherever Indian artware is known. Quite recently, we have had the views of other advocates of Technical Education. Messrs. Crole and Adam, representing the Victoria Technical Institute, have insisted that Government should take the whole matter of technical training in its hands, and they have produced voluminous evidence showing that the prosperity of a country goes hand in hand with its manufacturing development, and they demand that Government should establish schools where the best methods in use among manufacturers in England may be shown, and practised. The Government's view is ably set forth by the Hon'ble Dr. Duncan, Director of Public Instruction, and appears as an answer to the demands of the Technical Institute. He thinks that Government have, by no means, been neglectful in the matter of Technical Education. The scientific facts and laws taught and verified by experiments in the colleges providing instruction in Advanced Physics and Chemistry, the theory and practice of Engineering as taught in the Engineering College, the work done by the teachers of the School of Arts in giving a general education side by side with a scientific and practical education to its students, the sons of artisans, must all be considered as forming a part of technical training. "Examinations greatly aid teaching" is the dictum of Sir Philip Magnus, and acting on this, Government for some years have had an elaborate and complete system of technical examinations, comprehensive enough to include every kind of technical instruction. Mr. Chatterton expresses one fact which we think ought to be kept very clearly in mind. There is a sort of idea that, if Government opened a technical school illustrating and teaching the principles underlying any particular trade, that particular trade would at once spring into existence and rapidly advance in importance. This is quite a mistake. The trade must exist first, or, at any rate, there must be some definite signs of its being called into existence, without the assistance of technical education, before it will be of any use to open a technical school. As a matter of fact, the demand for technical schools in England arose from the capitalists, and the schools opened had a curriculum directly bearing on the particular industries flourishing in the particular districts. But if we consider the needs of Madras, we shall see that there are no industries

of any great importance except Agriculture. Mr. Chatterton excludes agriculture from his address, since he is speaking particularly of the mechanical trades. To us it seems a matter of very great difficulty to determine what subjects should be specially taught in a Technical School. Free-hand, model and perspective Drawing should be taught in all schools, because this is a subject that, apart from its great educational value as a means of training the hand and eye, will be of very great use to every artisan, no matter what his particular trade may be. But, at present, we think it is impossible to mention any special trade that will thrive or even be materially benefitted, in consequence of its being included in the curriculum of a technical school. With agriculture, the case is different. Except a small fraction, all the laborers of India are connected directly or indirectly with this important industry, and Government has, for a long time, shown its anxiety to give a good scientific training in Agriculture to those who own and farm land. The Agricultural College at Saidapet is evidence of this; the various attempts to establish Agricultural Schools and model farms in each district, the cattle shows and implement exhibitions that are annually held, and the various committees that have reported on this subject, notably that presided over by Mr. Nicholson, show that Government has extended a paternal hand to this important industry. The difficulty, however, is to reach the ryot, to actually impress upon him and convince him of the importance of improved methods and modern implements, the necessity of efficient manuring, the possibility of improving his cattle by selection, and various other facts, the results of modern scientific research, all helping to get more out of the land, and thus to increase the prosperity of the country. Until the ryot is far better educated than he is at present, most of these truths, even when demonstrated by model farms, seem impossibilities, and the methods that the ryot uses now are those that have been in use for centuries.

At the conclusion of Mr. Chatterton's lecture, Mr. Orr added a few weighty remarks bearing out what we have already insisted on. He said that "there was no demand when industrial establishments languish for want of trained Directors. There was no demand in the bazaar for a better finished article or an article better designed for its use. After all, there was no demand in India for Technical Education." As a large employer of labour in one of

those industries specially assisted by Technical Education, these remarks are very significant. The fact is that, until a far better case is made out for the extension of Technical Schools and Colleges, Government would not be justified in spending further sums of money in promoting a particular kind of education for which there is no demand or practically none. During the last five years Government has spent 5 lacks of rupees on the Engineering College, the Science Schools of the Presidency College, and the School of Arts, and is spending a large sum annually for the maintenance of these Institutions. Technical Education in Madras, under conditions at present existing, would be a very expensive experiment, and to us it seems there would not be the least possibility of there being an adequate return. Those, who advocate a better and more extended system of Technical Education, may rest assured that, if a good case be made out for the establishment of Technical Schools on a larger scale than at present, Government will be only too ready to meet the requirements, and to lend a sympathetic aid in developing any new industry that can possibly be brought into existence.

GOVERNMENT OF A SCHOOL.

The government of a school implies that there are certain rules for the conduct of it, and that the teacher has the authority to exercise the powers conferred on him by those rules. That the teacher has this authority over the pupils is admitted by the parent by the very fact of his sending his children to school. Though there are certain powers which belong either to the department of instruction or to the managing body that has the school under its control, still there remains a very large portion left entirely to the schoolmaster, who, by enforcing the rules and his powers makes the school a regular organization performing a kind of orderly and systematic work. No doubt, the Head teacher has very often a larger share of the power of government, and his sphere of authority extends not only over the particular class, of which he may happen to be in charge, but also over the other masters of the school, and on such others who prepare for and aid in the regular work of the school. These powers of the Head-master belong to him by virtue of his office, and he has also sometimes certain powers by delegation. Therefore, the success in the government of the school will depend greatly on the manner in which the master exercises his authority. No

school can be efficiently conducted, unless its government be judicious and effective: and a judicious and effective government must depend largely on the rules that are laid down, and the manner in which these rules are enforced. The rules made for the government of a school should be as few and simple as possible, and inasmuch as it is not possible to foresee all possible kinds of violations, and provide for them, there must exist in every school scope for the exercise of what is called the "unwritten law" which means that certain lines of conduct though not specifically referred to by the rules are still to be followed, in view of the general welfare of the school. Some educationists are not in favour of any rules for the government of a school being codified and displayed in a cut-and-dry fashion. They argue that, if a school is to be governed by a *Code of Laws*, the pupils will act on the presumption that whatever is not prosecuted is admissible, and will begin to enquire, not whether any act is right, but whether it is forbidden. Thus formal "school rules" are not so effective in the government of a school as the training of the intelligence, and sense of right in the pupils to enable them to act in such a way as to aim at their own welfare and the welfare of the whole school. But this state of things does not come on at once, and the progress must necessarily be gradual; and the end will be attained sooner or later according to the manner in which the authority is exercised, violations must occur in a school, and enforcement of the rules means the punishment of the offenders; and therefore the kind of school punishments that is suitable under the various circumstances that brought about the violations of the rules, is a matter for the serious consideration of the teacher. We have already said that the efficacy of school government depends largely on the manner in which the teacher exercises his authority. This consists in the enforcement of the rules of the school, in the punishment of the offenders, and in securing right kind of obedience and good conduct. This the teacher may attempt to accomplish by the use of force or fear, and resort to the punishments at his disposal, a course which rouses in the minds of the pupils a feeling of antagonism and hatred, and in course of time, disobedience, and possibly open rebellion may result. If, on the other hand, the teacher is kind and considerate, and, at the same time, firm and resolute, he creates in the minds of his pupils a feeling of respect for the teacher, and this is a sure preparation for gaining their affection: and when that is done, the government of the school becomes quite easy. Two things are most essential to secure and maintain an efficient control of the school. The teacher must convince the pupils that he is their friend, constantly aiming at their improvement and desiring their good. If he be so in reality, it does not take long to produce the conviction in

the pupils. Next, the teacher should endeavour to secure in the school a feeling in favour of whatever is good and right. It is impossible to carry out for any length of time the orders of the teacher, if they happen to be offered to the *public opinion* in a school, howsoever rigid the teacher may be in enforcing them, and whatever pains and penalties he may visit the infringements with. The public opinion in a school is perhaps the most efficient means in school government. No pupil ever resists the force of a truth which is approved or condemned by the common voice of his companions. The two points above-mentioned receiving the attention of the teacher, the government of the school will involve almost no difficulty, provided the teacher never forgets the nature, disposition and the wants of those over whom he is placed.

THE TRICHINOPOLY ST. JOSEPH'S COLLEGE DAY.

6th April 1896.

The Rev. Father Sewell, who presided on the occasion, after addressing a few words of welcome to all the former pupils present, drew their attention particularly to two of the resolutions passed last year, one of which related to a College Day, and the other to a Jubilee Memorial Home. With regard to the latter, he regretted that, out of a sum of Rs. 1,534 subscribed for the purpose only Rs. 129 have been realized, and called for suggestions from the old pupils assembled as to what should be done in order to get further subscriptions, and to realize subscriptions already promised; and remarked that the Committees of the various Collectorates in Southern India which had been asked to continue their office for the purpose of aiding the Memorial had not been able to do anything until now. He next introduced as a suitable subject for discussion in the meeting this year, the question of "College Hostels," a question that has occupied such a prominent place in the public journals and educational circles. He spoke of the three-fold object of College Hostels. The first was to have plain wholesome food at regular hours; the second was to foster a spirit of solidarity among students; and the third was the educational advantage, namely, habits of discipline. Once more welcoming all those present, he called upon them to offer their opinions and remarks on the subject introduced for discussion.

Mr. A. Rajaram Aiyar, B. A., Editor of the *Madura Mail* and an old pupil of the College, then addressed the meeting. He began by thanking the College authorities for the excellent meals he had received at the

College Hostel, and in a long and able speech brought home to the students of the College who were there the necessity and the usefulness of College Hostels. He said he saw no reason why Brahmin lads should ever complain of the food given them. The Indians are by heredity a people of the most simple habits. The South Indian Brahmin, unlike his compeer of Bengal, is a pure vegetarian. There were other things more important than food which were to be cared for. In this manner he lectured to the student pupils on the necessity of obedience to the Hostel authorities, on the necessity of bearing and forbearing, or as he himself put it, of grinning and bearing when little things go wrong. He then offered his opinion on the manner in which a Hostel may be conducted. He said that a Representative Committee consisting of a Hostel Superintendent, a member or two chosen from the inmates of the Hostel, together with two or three teachers of the College might most effectively manage the Hostel. But the most important advantage of the Hostel is discipline and the moral tone of its inmates. In order to obtain discipline among them he suggested the "Tutorial System" prevalent in the Universities of England. He said 15 or 20 students might be entrusted to the care of a Hindu teacher who should look after, guide and correct them. With these remarks he resumed his seat.

Mr. Swaminatha Dikshitar, B. A., L. T., Head Master of the Calve College, Pondicherry, and an old pupil of the College, was the next speaker. Among many excellent remarks he made on the subject of "College Hostels"—excellent, for they were all drawn from personal experience—he particularly insisted on the moral conduct of the Hostel supervisors. He regretted that, on account of the much deplored Hindu custom of infant marriages, supervisors would not be available who would solely devote themselves to look after the interests of the Hostel students, and hopefully looked forward to the day when tutors would be available with no divided care. He next spoke of the haughty behaviour of the students towards the Hostel Manager and his servants, and exhorted the pupils never wantonly to disregard the lawful interest of the Hostel Contractors and their cooks. As regards the maintenance of good discipline, he said that it should be done not by force but by love. For the successful working of the Hostel he wished it to be divided into sections containing ten or twelve student's more or less of equal age, and of equal educational qualifications. These boys should choose one of them to be their head-boy who should be one of studious habits and of exemplary conduct. The head boys should watch the conduct of their electors, mix freely with them, and above all must set good examples to them. Five or six head boys thus chosen must be associated with 3 or 4 pro-

fessors of the College to form a Managing Committee. He then uttered a few words of praise on the regularity and discipline of the Catholic Boarders of the College, and wished the day near when he might be able to say the same of the regularity and discipline of the Brahmin lads of the College.

Mr. L. D. Swamikannu Pillai, M. A., LL. B., having been then invited by the former pupils stood forward and said that, when they dispersed from that hall last year, he thought there would not meet a sufficiently large number of former pupils for the next College Day. However what seemed so difficult had been achieved if not with success but with something approaching to success. He said he knew no movement which began with a hundred followers. Eight years ago even the Catholic Association which now counts so many members began only with a handful of former pupils. It was not a thing, therefore, he said, to be wondered at, that so few should have met there that day to celebrate the first College Day. He then expressed a hope that, in course of time, the ties, memories, associations and obligations that bind students to St. Joseph's College, would every year bring them in larger numbers to their *alma mater*, that the College Day would in future be more largely attended, and ended his speech by wishing success and prosperity to Saint Joseph's College, Trichinopoly.

Father Sewell then rose and after returning thanks on behalf of the College, went on to say that it was certainly very kind of Mr. Swamikannu Pillai to wish success to the old College of St. Joseph, and that in wishing success to the College, he was only wishing success to the former pupils, for they were all part and parcel of the College. He remarked that, if the College has a good name, it was largely due to the former pupils. He then went on to show why it was that, while in England so many Oxonians, Rugboans or Stonians came in such large numbers to celebrate their commemoration day, so few should come in this country. He showed that the ties and obligations that bind Etonians and Rugboans to their Institutions were not the same as those that bind the former pupils here. He said that, while in England, sons, fathers, and grandfathers receive education from the same Institution, in India, the student passes through six or seven Institutions before he completes his studies. The latter could not therefore attach himself to any school or College. However he remarked that with the present educational rules, such an evil was becoming less and less, and hoped that, in future, pupils would learn to attach themselves to one College, and that the College Days would be better attended and be a greater success. After wishing success to all the former pupils, he resumed his seat.

Mr. Muthuswami Pillai, Tanjore, who replaced Mr. Meenatchisundram Aiyar, who, owing to domestic affliction, was unable to attend said that a pleasant task had fallen to his lot, *viz.*, to propose success to the College Staff which was unique in this that they were men whose labours were not limited to a particular set of boys for a certain number of hours, but as children of Saint Ignatius had a universal field and might be sent anywhere, and whose lives were devoted to the education not merely of Christians but of Mahammadans, Hindus, as well as the most backward classes. But a Jesuit College, besides the actual teacher, contained those who took no prominent part in teaching but looked after the temporal and spiritual welfare of the students. There were the Rector, whose care was to watch over and direct the whole, the Prefects, who had the care of boys out of class time and who, (and he could speak from 12 years' experience as a boarder,) seemed always to be awake. There is again the Spiritual Father and the Infirmarian whom he had often seen, kneeling at night over the sick boy, caring for and tending with a mother's care, and last not least there is also the staff of native lay teachers who do not less deserve the gratitude of students for the care and labour they bestow, and to all the staff then be hoped they would join hands in wishing success.

Mr. K. V. Strinivasa Aiyangar, B. A., L. T., returned thanks for the kind expressions in which Mr. Muthuswami Pillai had spoken of the staff, and said he wished to propose success to present students. The College now numbered more than 1,800 students, and has been more than, 1,000 strong for the past ten years, and had been every year sending out about 200 students. He thanked the present pupils for the sports to which they had contributed that morning. The keen interest displayed and the good order preserved was a clear indication of the healthy tone of body and mind. He felt sure many former pupils wished they were young again that morning, and that they had had similar opportunities in their day, and that evening was to witness the distribution of prizes gained in the arena of the intellect. He pointed out that many a young orator in a College Debating Society gave expression to sentiments of patriotism and self-sacrifice, which, in the battle of life, he had allowed to tone down, and wished to point out he is the successful man in life who recognizes difficulties, and sticking to the ideals he had formed overcomes them. He then concluded by a wish for the success of present pupils which was heartily responded to by the former pupils.

One of the present pupils then thanked the former pupils for their good wishes, and assured them their example would not be lost upon them, and that the tie which had bound them to the College would bind the younger members also.

DANTE.

(Continued.)

"And so in this Dante, as we said, had ten silent centuries, in a very strange way, found a voice. The *Divina Commedia* is of Dante's writing; yet in truth *it* belongs to ten christian centuries, only the finishing of it is Dante's. So always. The craftsman there, the smith with that metal of his, with these tools, with these cunning methods,—how little of all he does is properly his work! All past inventive men work there with him;—as indeed with all of us, in all things. Dante is the spokesman of the Middle Ages; the thought they lived by stands here in everlasting music. These sublime ideas of his, terrible and beautiful, are the fruit of a Christian Meditation of all the good men who had gone before him. Precious they; but also is he not precious? Much, had not he spoken, would have been dumb; not dead, yet living voiceless." Perhaps too it is in this aspect that he has been so great a stimulus as he has been to study and culture. To-day in England, *the* criterion of literary culture may be said to be this—an appreciation of Dante. For he is not to be read without study, nor to be understood without knowledge, nor loved without refinement. And yet the culture of Dante was never wider, nor more reverent. Hear what that great American scholar-poet said, who was perhaps the highest type of culture our time has known—James Russell Lowell.

"One is sometimes asked by young men to recommend to them a course of reading. My advice would always be to confine yourselves to the supreme books in whatever literature; still better to choose some one great author, and grow thoroughly familiar with him. For as all roads lead to Rome, so they all likewise lead thence; and you will find that, in order to understand perfectly and weigh exactly any really vital piece of literature, you will be gradually and pleasantly persuaded to studies and explorations, of which you little dreamed when you began, and will find yourselves scholars before you are aware. *If I may be allowed a personal illustration, it was my own profound admiration for the* Divina Commedia *of Dante that lured me into what little learning I possess.* For remember that there is nothing less fruitful than scholarship for the sake of mere scholarship, nor anything more wearisome in the attainment. But the moment you have an object and a centre, attention is quickened, the mother of memory; and whatever you acquire groups and arranges itself in an order which is lucid, because it is everywhere in intelligent relation to an object of constant and growing interest.

Thus, as respects Dante, I asked myself, what are his points of likeness or unlikeness with the authors of classical antiquity? In how far is either of these an advantage or defect? What and how much modern literature had preceded him? How much was he indebted to it? How far had the Italian language been subdued and supplied to the uses of poetry and prose before his time? How much did he color the style or thought of the authors who followed him? Is it a fault or a merit that he is so thoroughly impregnated with the opinions, passions, and even prejudices not only of his age, but his country? Was he right or wrong in being a Ghibelline? To what extent is a certain freedom of opinion which he shows sometimes on points of religious doctrine to be attributed to the humanizing influence of the Crusades in enlarging the horizon of the western mind by bringing it in contact with other races, religious, and social arrangements? These and a hundred other such questions were constant stimulants to thought and inquiry, stimulants such as no merely objectless and, so to speak, impersonal study could have supplied."

And when one recalls that it was Dante who laid the foundations of Italian literature, that he gave to Italy the impulse to unity which a common hero-poet embodies, that more than any warrior or statesman he contributed to that unification of Italy, which we have seen accomplished in our own days, surely we must acknowledge that here is a man of whom and of whose work we dare not be ignorant.

Such being the influence of the poet, I have thought that it might be of use if this evening I gave a short account of his life and work, in view especially of what I have already referred to—the rather surprising scantiness of Dante literature within your reach, trusting however that you will treat it but as an introduction to an influential friend whose company you will hereafter cultivate for yourselves.

It was in May 1265—the year made famous by the summons of De Montfort's Parliament—that Dante was born. His native town was Florence even then a beautiful town by the Arno, though as yet its Cathedral and its Bell-tower, to-day its main features, were not. And there the child grew up in the thronged quarter, where the nobles' houses rose strongly guarded side by side, each with its undivided family, jealously loyal to its head, with traditional quarrels to maintain, and old alliances to cherish.

The first incident recorded in the poet's life belongs to his tenth year. It was May-day, one of the great festivals of the Florentines' year. And Folco Portinari, a respected noble, made a feast for all his friends. Among them Dante's father was present, having with him his

little son. And there Dante playing with the other children first saw his host's child-daughter, Beatrice—a vision that never faded from his mind. She was but eight, and he nine—but in that precocious Italy, even children's minds turned to love, and Dante asserts that from that time her love possessed him.

Soon afterwards it seems his father died. But his mother's devotion and thoughtfulness secured him a thorough education. After studying under the best teachers then in Florence, he went in his sixteenth year to the oldest of European Universities, then the most famous at Bologna.

Nine years after his first sight of Beatrice, he first heard her speak, and her sweet courtesy completed his conquest. Whereupon he wrote his first sonnet recounting a dream about his love. In this, following the troubadour fashion of the time, he saluted all faithful followers of love praying them to give their opinion of his vision. Among the many answers was one from Guido Cavalcanti, a youth with whom there thus commenced a lifelong friendship,

So began the poetical work of Dante. And so for a time it continued. Troubadour love-poetry was the fashion of the day, when each young poet lived a sort of fancy-life, singing of some maiden, dreaming of her, doing affected things because they were what a troubadour should. And Dante was admirably adapted to excel in company like this. A dreamer of dreams, a lover of exalted passion, who would swoon at the sight of Beatrice, and could find sufficient delight in praising her—so did he live one mystic life, while outwardly he lived another life—very real. For Florence was at war, and Dante was one of her champions. And so in the battle of Campaldino 1289, we find him in the front ranks fighting for his much-loved town—and in the following year among the victors over the neighbour rival city of Pisa.

Meanwhile, Beatrice had married a certain nobleman belonging to that family of Bardi, of whose later ruin George Eliot has written. This, in no way, discomposed Dante apparently, for his love was a strange mixture of platonic affection and troubadour worship. But in the year of his second battle, Beatrice died, and with her for a time the light went out of his life. For nearly three years he was disconsolate pouring out his grief in verse; but then he says he saw in a vision 'things which made him resolve not to speak more of this blessed one until the time should come when I could speak of her more worthily. And to arrive at this, I study as much as I can as she truly knows, so that if it pleaseth Him by whom all things live that my life should continue for a time, I hope to say of her that which has not yet been spoken of any one.' A resolve which I bid you to bear in mind. To mark the end of

this chapter of his life, he collected all he had written concerning Beatrice, and published it with comments under the title of *Vita Nuova*—My New Life. His first book—one of the most remarkable unveilings of a man's inmost heart ever given to the world! Its poems made him at once the most famous poet of his time, while its commentary was the best Italian prose till then written.

In 1293 Dante married. His bride Gemma Donati belonged to a nobler family than his own. Of her character nothing is known. The poet never mentions her. In all probability she was a good house-wife on whom he would waste none of that mystic love which he had lavished on Beatrice. If so this is quite in accord with the troubadour fashion—for many of these poets managed to combine with their dream, love for some lady whom they worshipped afar off, never thinking of approaching an ordinary homely intercourse with another woman whom they made their wife—but whom they never sought to praise. So Dante lived, and round about him grew up his family—six sons and one daughter whom Gemma bore to him in the years of their common life.

In 1293, the year of Dante's marriage, an important constitutional revolution occurred in Florence. By the Ordinances of Justice passed in that year, the nobles were subjected to various disabilities, judicial and civil. They were declared incapable of holding any public office, and were even disfranchised entirely.

The older and sturdier nobles refused to surrender their nobility for the sake of office, but Dante with many others was content to join himself to one of the Arts or Guilds to prevent his disfranchisement. Accordingly about 1297, he was enrolled in the Guild of Physicians and Apothecaries, thus paving his way to public employment. This speadily followed. To Venice, to Naples, to the Pope, to France was Dante sent in turn as the City's ambassador, and on each embassy he won for himself credit and favour.

At last in 1300, he was elected one of the Priors or Signory of Florence to whom the administration of the city was entrusted. His office lasted as the custom was for two months only, but in those two months it seems he created enmities which embittered the whole of the rest of his life.

Italian city-life seems to be cursed with a spirit of dissension by the side of which party struggles as known to us are peace itself. It was not twenty years before that, the party favourable to the Pope had driven out of the city their neighbours who favoured the Emperor. Ten years later, the nobles had been as we have seen disfranchised by the trading classes. And now once more has cleavage made itself seen.

Not content with their own quarrels, the Florentines must needs discuss their neighbours quarrels too. A miserable dissension had broken out at the neighbouring town of Pistoia, between two parties who called them selves, the Whites and the Blacks. To close the strife, the rulers of the city invoked that intervention of Florence. Whereupon the Florentines divided into Whites and Blacks too.

As may be supposed, the Pistoian quarrel was but the occasion, not the real cause of this discord. The real cause was the old rivalry between the nobles and the rich merchants who had supplanted them in the primacy of the city. The former attached themselves to the Blacks, the latter accordingly sympathised with the Whites. Dante, who must have been hated by the nobles as a renegade, naturally leaned towards their opponents, though his official action at first was impartial enough. He and his fellow-Priors banished the heads of both parties including the poet's friend Cavalcanti. But in a short time, they allowed the White leaders to return, while still excluding the Black. In other matters too, Dante showed vigour and came to look upon himself as indispensable even after he had laid down office. His arrogance increased alike in private and in public. He gave personal offence to more than one noble family that wished to be friendly, and he alienated the people by his pride. The Blacks sought the help of the Pope, who, having found the Whites recalcitrant, made overtures to a French prince for his armed assistance in the pacification of the city.

It was proposed that Dante and others should go as an embassy to the Pope to avert this. Whereupon Dante broke out in the Council 'If I go who is to stay?—if I stay who is to go?' On which the writer who records the incident significantly comments 'These words were heard and remembered.'

The embassy was sent. Having received their answer, the delegates were at liberty to return. But for some unexplained reason, Dante remained in Rome. The French Prince entered Florence; the Blacks and nobles were recalled; Dante's party was overthrown, and the city was pillaged. The new government declared six hundred of their opponents including Dante's exiles. At a later stage, they threatened to burn him to death if he fell into their hands. His children and his wife who had connexion among the new rulers of the city remained however unharmed in Florence.

But though he had done nothing when his help might have been expected, Dante set himself to effect his return. Strange as it may seem, love of their home set the Florentine exiles conspiring against it. Dante is seen on embassy begging foreign help against his native town.

Twice did the exiles make an armed assault upon the city—only to fail. The second time they made their way within the gates but were even then repulsed. And Dante saw Florence never again.

Finally, in disgust at the character of those with whom these attempts had associated him, he gave up his connexion with them, and betook himself to a life of study and literary production at Bologna. Three great works were produced at this time—the *Banquet*, in which he set forth his views and Philosophy; the *Essay on Vernacular Eloquence*, in which he championed the use of the modern languages in literature in opposition to the clergy who wished to restrict all writing to Latin; and the *Essay on Monarchy*, in which he expounded his political faith.

When Dante's foes occupied Florence, his wife Gemma had stowed away many of his possessions in the keeping of various friends. A change in the Government having made it safe after some years to gather these together again, there was found amongst them a packet which aroused the greatest interest in those who found it. It consisted of seven cantos of a Latin poem by Dante. Being obviously incomplete, his friends contrived to send it to the exiled poet. He had supposed that it, along with many other writings, had been destroyed by the mob when they sacked his house, and had accordingly regarded himself as free from the task of completing it. But as he saw in its preservation God's will that it should not be lost, he determined to bring it to its due completion.

Thus came Dante's great work into being. This manuscript was the beginning of that work that was to honour Beatrice as never woman had been honoured. Begun in Latin, and lost but now recovered—he began it again in Italian which was still regarded by many as a tongue unfit for serious literature. It was early in 1307 when the manuscript was recovered. Dante who had found refuge with a friendly noble, spent the next two years working ardently in peace at his revived task. No sign did he make till he produced the first division complete.

A famous scene is the next view we have of him. For the time all hope of return to Florence has vanished. So he turns northwards across the Alps to visit the Universities of other lands. Ere starting he was anxious to place in safety his precious manuscript. So he chose out a monastery whose prior was of some note as a man of culture, and visited it at the beginning of his journey, to entrust his work to the prior's hands. On his arrival, being asked what he sought, he long was silent, but at last gave way, and looking round on all the monks, the weary exile answered, "What I seek is *peace*." Then having accomplished his end, he made his way to Paris, and perhaps to Oxford, continuing his studies in philosophy and theology 'with much inconvenience in the things necessary to life.'

Then the news having reached him of the accession of a new Emperor who bade fair to realise his political dreams, Dante returns to Italy to await the restoration to Florence which now seemed so near. But other work occupied the Emperor at first, and when at last he besieged Florence, he was too weak to take it. Withdrawing, he was smitten down with fever, and with his death, Dante's hope of return passed away. The next two years were spent in the writing of the second division of his book—under the protection of the warrior-lord of Lucca and Pisa, two cities hostile to Florence. A revolution drove him to Verona, where he remained till a quarrel with its young lord necessitated his last move to Ravenna. It was at Verona that the women whispered as he went by, that he was the man who went to and fro between Hell and Earth as he pleased—a whisper which gave pleasure to Dante who passed on smiling.

It was at Ravenna that he completed his work. Here his sons joined him, and here the Prince honoured him, sending him even as ambassador to Venice. And it was at Ravenna that, as his admirer Boccacio wrote, he rendered his weary spirit up to God. He died in 1321 in his fifty-sixth year.

I have unfortunately little time to speak of the great work to which I have so often referred, this is the 'Divina Commedia'. The title calls for a word of comment. Dante himself called it simply 'The Commedia' using that word to denote a poem that ends happily. The epithet 'Divina' was prefixed by later generations under the feeling that the name comedy was too mean for so remarkable a work. It consists of three Books—the Inferno or Hell, the Purgatorio or Purgatory, the Paradiso or Heaven. Each of these books contains about 30 cantos of varying length. Dante's verse is the lerza rima—in triple links to one another by a chain of rhyme.

Let us now turn to it. The poet first describes himself as in the midst of a dark wood at the foot of a mountain; by this he evidently means life. He is confronted first by a panther (Luxury), then by a Lion (Ambition), then by a she-wolf (Avarice) which in turn hinder his progress. Hereupon the shade of Virgil—that gentle Roman poet whom the Middle Ages reverenced as a worker of kindly miracles, and whom Dante regarded as his master—appears to him. Virgil announces that he is sent by the Divine Mercy to show him the way out of the forest. He tells him that it is the will of Heaven that he should visit the regions where dwell the dead, that thus he may learn the highest truth. As they approach the difficult pass through which their way lies, Dante begins to doubt and asks his guide for some proof of his ability to conduct him in safety. Virgil answers that three heavenly ladies who had marked

his danger had sent him to his deliverance, these three being the Divine Mercy, Lucia (Enlightening Grace) and Beatrice. Thus encouraged Dante proceeds.

Of the three kingdoms of the dead, Hell it was which they are first to visit. In accordance with the view followed by Virgil in his own great poem, Dante locates Hell beneath the surface of the Earth.

To Dante the earth is a globe, and Hell stretches down half its diameter to its centre.

The travellers, having passed through a portal inscribed 'All hope abandon ye who enter here,' come first to Limbo, a region where the virtuous heathen such as Homer and Virgil dwell with unbaptized infants. Thence they are ferried by Charon across the River Acheron, and at once commence their descent into Hell proper.

We need not stay over the various circles and dungeons which compose this kingdom. Dante's view of the shape is a kind of spiral ever narrowing towards the bottom. There are seven circles reserved respectively for sinners guilty of each of the mortal sins. The topmost is given up to those who had been guilty of lust, the next to those guilty of gluttony, the next to those who had sinned through avarice and simony and so on, each being punished with appropriate penalties. As Dante approaches each circle, he enters into conversation with some of the shades there undergoing punishment. Thus a story of some typical sinner in each kind and of his punishment is brought before the reader. These sinners are drawn from the most varied records. Criminals of the old Greek mythology, of Roman History, of Biblical story, of Dante's own times are mingled together most remarkably. Like Michael Angelo Dante would seem to have avenged himself on his foes by placing them in hell. The punishments meted out are physical horrors such as distortion of the body, burning with fire, sinking in a lake of pitch, or, for the worst sorts of sinners, torture by demons. At the foot of all, lies Satan sprawling huge, the description of whose form reminds one somewhat of some Hindu mythological being. On his head three faces, two mighty wings whose flapping creates three winds wherewith the deepest rivers of hell is frozen.

"At six eyes he wept. The tears
Adown three chins distilled with bloody foam.
At every mouth his teeth a sinner champed,
Bruised as with ponderous engine, so that three
Were in this guise tormented; but far more
Than from that gnawing was the foremost panged
By the fierce rending whence oftimes the back
Was stripped of all its skin."

This worst punishment falls to Judas, the betrayer of Christ. His companions in torture are Brutus and Cassius, traitors against Julius Cæsar, whom Dante reverences as founder of the Roman Empire, which he regarded as being, next to the Church of Christ, the most divine thing in the world. Having thus reached the bottom of hell, *i.e.* the centre of the earth, the travellers turn themselves about, and press their way onwards by the antipodes where, after further journeying, they arrive. With this the first division of the Comedy, the Inferno or Hell, closes.

The Second Book, Purgatory, takes up the journey where the Inferno breaks off. The world, as regarded by Dante, was the centre of the universe, hence when the travellers reach the Antipodes after their journey through the midst of the earth, they find stars and planets still above them. Rising from the earth up to these stars, they see an exceeding high mountain; this is the Mount of Purgatory which like Hell is divided into circles where sinners of various kinds are tortured. Unlike the torments of Hell, however, these penalties are not eternal, and are intended to purify those who are exposed to them, thus fitting them for Heaven. At the entrance to Purgatory, the guardian of the Mount carves with his sword upon the poet's brow seven scarlet letters—to mark the sins of which he had been guilty. As each circle is passed, Dante hears one of the Beatitudes pronounced, and finds that from his brow is removed one of these letters. It is in Purgatory that he meets Sordello, an episode which suggested Browning's great poem. Guided by Virgil still, he passes on to the summit of the mountain where he finds the earthly paradise. Here Virgil vanishes, and Beatrice takes his place as the poet's guide; and with this closes the second book.

The third book, Paradiso or Heaven, describes how guided by Beatrice Dante visits in succession the ten Heavens. These are in turn the so-called seven planets, the sphere containing the fixed stars, the primun-mobile, and the Empyrean.

In each is found some one to instruct him in some lofty subject. Beatrice fixes her eyes upon the Empyrean where dwells God himself, and in the rapture of that gaze is lifted upwards. Dante gazing upon her face is lifted with her. In the planets are found the saints of varying degrees of holiness. In the eighth sphere are the apostles. In the ninth are the angels, and the poem closes with the poet contemplating the glory of God Himself.

> "Here vigour failed the towering phantasy;
> But yet the will rolled onward like a wheel,
> In even motion, by the love impelled
> That moves the sun in heaven and all the stars."

Thus has been accomplished the deliverance of Dante. Taken in his sins he was shown by Virgil, who typifies Moral Reason, how vice is punished as he gazed upon the penalties of hell and purgatory. By Beatrice, who typifies theology or faith, he has been shown how virtue is rewarded in the blessedness of heaven. Thus has been accomplished that amendment of his life which Beatrice and the Divine Mercy were represented as desiring. This brief sketch can give but the faintest idea of this remarkable poem. I have said nothing of the discourses on Philosophy and Theology which makes up so much of its value, nor have I been able to describe even one of the episodes which so abundantly enrich it. I have given barely a hint of its wealth of allegory ; and of its wonderful similes I have mentioned not one. It is the combination in this one poem of so many excellencies that is its excellence. Here is Reason at its best, but it is Reason linked with an imagination that has never been equalled, and both are flushed with a passion always strong, and always on the side of right. To us to-day the imagination may seem quaint. The thought is that of the schoolmen of six centuries ago. The creed is that of a religion perhaps alien to us, and yet no one can read even one canto without feeling that he is in the presence of a master, to the study of whose work years might be devoted with constant profit and pleasure. For, though Dante was essentially an Italian of the early Renaissance, and though the scenes he describes may seem to us but a strange mythology, though his own peculiar individuality speaks in every line he wrote, yet so rich is his personality, so vast his genius, so quick his fancy, so keen his observation, so momentous the problems with which he grapples, that the world, which loves beauty and strength, and cherishes all thought on these stupendous matters of Love and Hate, and Life and Death, and Divine Justice and Divine Mercy, can never let him die.

TECHNICAL EDUCATION.*

By Mr. Alfred Chatterton, B.Sc., Assoc. M. Inst. C.E., M.I.M.E.

Technical education, the subject, upon which I have been asked to lecture to you this evening, has during the last 15 years become one of the great social problems of England, and to its solution the energies of some of the ablest men of the day have been devoted, and vast sums of money have been expended in carrying into practice the conclusions that

* A lecture delivered on the 20th April 1896, before the menbers of the Presidency College Literary Society.

have been arrived at after prolonged deliberation and detailed enquiry. For some ten years or more Technical education has agitated the minds of Indian administrators, and in each province of the country efforts have been made to place the facilities for obtaining Technical instruction more or less in line with the local industrial requirements. It is doubtless known to most of you that here in Madras during the last two years there has been carried on a most animated discussion on the subject, and that although as yet no practical results have accrued from it, the air has to some extent been cleared, and Government will be able to take active measures, if such be deemed necessary, after having both sides of the question most fully and openly placed before them. Into this polemical region it is not my purpose to lead you this evening, and I hope rather to be able to place before you such information as will enable you, if you care to pursue the subject further, to do so intelligently and free from pre-conceived erroneous ideas. It was but a few weeks ago that your distinguished countryman, the Hon. Mr. Justice S. Subrahmanya Aiyar, in his address at the Convocation of the University, pointed out to the newly admitted graduates the necessity for some modification in our existing system of education to meet the gradually changing condition of the intellectual labour market. In this connection I cannot help quoting his words: "If those who have received the benefits of liberal education would only take courage and step out of the beaten track of the public service or the usual professions, and enter into other, equally honourable though more laborious, walks of life as yet untrodden by them, I feel sure they will find plenty of good work to do, which would prove not only fairly remunerative to those who do it, but also would, in the long run, be beneficial to the community as a whole." Hitherto the public services, the legal profession, and in a minor degree the educational institutions of this Presidency, have absorbed and found employment for the great majority of those upon whom the University has set the seal of her approval, but the rapid extension of higher literary education is rendering this distinction of smaller market value, and the time is coming, if indeed it has not already come, when many of you, at the end of your college careers, will find it difficult, if not impossible, to make a respectable livelihood in the paths which you have hitherto considered most lucrative and most adapted to your personal idiosyncrasies. The love of personal ease and hatred of active physical exertion has been and still is the leading characteristic of the intellectual races of this country, and so long as that prevails there will, I fear, be little chance of your obtaining conspicuous success in the other walks of life which are open to you.

I am glad, however, to notice that there is in every college I am acquainted with, and in this college particularly, a gradually increasing number of students, who have thrown aside their inherited sedentary habits, and have displayed an amount of enthusiasm for, and degree of skill in, outdoor exercises, which augurs well for their future. The love for an active life is a growing one, and I can only hope that some of you, at any rate, will be sufficiently imbued with it, that it will lead you to eschew those occupations which are pursued at the desk or writing table, or in the courts of justice or the lecture rooms, and to turn your attention to other possible ways of making a living. It is to such among you that my remarks this evening on Technical education will be more particularly addressed.

At the outset it behoves me to try and explain to you what is meant by the term "Technical education," how it came into vogue, how it is being carried on and what it has done for other countries, before I can discuss with you the Indian, and more particularly the Madras, side of the question which is that in which you are personally most concerned. Of course, you will understand that the limits of time preclude me from attempting to give you any thing more than the merest outlines of this subject; but in dealing with it I shall endeavour, as far as possible, to illustrate it by references to my own personal experience. Technical education has received many definitions, and in consequence there is much vagueness as to what is really meant by it, so that it is necessary to first state exactly what limits I intend to assign to it in dealing with the subject this evening. Viewed in its broadest aspect it is education that has for its object not merely the training of the mental faculties, but also the acquirement of knowledge which shall be directly useful in after life. It is however usual to limit the term to education in the arts and sciences which have a special bearing on the subsequent professional work of the person who receives it. Under this definition as Technical schools would be classed such institutions as the Law and Medical Colleges of Madras, and indeed they are such, since without the preliminary training received in them, or its equivalent, it would be impossible for any of you to hope to succeed in those two great professions to which they lead up. Somewhat illogically perhaps, but in practice it has proved convenient, we exclude such courses of training as are given in these institutions and confine the term "Technical" to instruction in the principles of science and art applicable to industries, and in the application of special branches of science and art to specific industries or employments, as well as in modern languages and commercial and agricultural subjects, but not in teaching

the practice of any trade or industry or employment. This is the definition given in the Technical Instruction Act of 1889, and except that I propose to omit all reference to commercial education, it is that which I have adopted for the limits over which my lecture will range. You will see that it particularly excludes industrial schools in which the only object is to train artizans in the practices of their trades. In fact, Technical education, as I want you to understand the term, is not a substitute for the training of the office, the workshop, the factory or the mill, but is supplementary to that which can be obtained in such places, and by no means obviates the necessity for serving some kind of apprenticeship to practical work. Sometimes the theoretical instruction of the Technical school is given as a preliminary training, but more frequently it is carried on in the evenings concurrently with the acquirement of practical knowledge and experience in the daytime.

The necessity for Technical education has only been recognized in England during the last quarter of a century, but on the continent of Europe its beginnings dates back much further, and at a much earlier period it became part of the general educational systems in force. The origin of the modern industrial system lies in the inventions due to the genius of a group of Englishmen, who flourished in the middle and latter half of the eighteenth century, of whom Watt, by perfecting the steam engine, Arkwright, by the invention of the spinning jenny, Hayman, of the mule, and Crompton, of the powerloom, were the chief, and the results of their labours were seen in the rapid growth of the great manufacturing towns of Lancashire and Yorkshire. All throughout the period of the great wars which followed the French revolution, England was able to maintain her soil free from the ravages of the invading armies which overran the rest of Europe, and the great strain of the Napoleonic wars was met by the development of our internal resources. In the years which followed the restoration of peace, whilst continental nations were slowly recovering from the frightful losses in men and money which they had sustained, England was actively engaged in developing the mechanical arts, and the manufacturing centres were rapidly growing into huge towns full of factories worked by steam, in which raw materials were converted into high class finished goods for the rest of the world. The labours of men like the Stephensons, father and son, Whitworth, Armstrong, Bessimer, and a host of others continually added to the commercial supremacy of Great Britain, so that when European nations, recovering from the lethargic state into which they had been plunged, began to adapt themselves to this new order of things, they found it necessary to call to their assistance the skill and

experience then possessed by Englishmen alone, and to English engineers, contractors and workmen were entrusted the inception and carrying out of the railways and first industrial enterprises which were started.

The Great Exhibition of 1851 demonstrated only too decisively the immense superiority in the mechanical arts enjoyed by England, and the necessity for vigorous measures on the part of foreign countries to supply their people with the Technical knowledge and skill they so greatly lacked. Technical schools and colleges were started, in which engineers and men of science, trained in England or with English experience, laboured earnestly to supply the deficiencies of their countrymen. Money was freely spent, every encouragement and facility was given for research, and no effort was spared to render the instruction efficient with the result that the lee-way was rapidly made up, and as time sped on it became apparent that in many branches of industry, particularly in those requiring an intimate acquaintance with organic chemistry, England no longer enjoyed the undisputed supremacy of earlier days. Gradually the idea became prevalent that there was much in continental systems of education which was superior to the old-fashioned methods still in vogue in England, and that it would be necessary to institute sweeping reforms to place ourselves once more in the van of progress. Enquiries followed, and it was found that the ever-growing use of machinery led to the concentration of productive centres and to a sub-division of labour which rendered it impossible for workmen to acquire in the workshops that general knowledge of their trade which is essential, and that though they might acquire great skill in particular operations, yet more was wanted, and it was clearly seen that Technical schools were necessary in which they might obtain that general knowledge of their whole trade and of the scientific principles underlying it, which must be the possession of an intelligent and useful workman. Still more defective was found to be the method of training those who by birth and social position were destined in after life to be the leaders and directors of industrial enterprise. The practical applications of science are so numerous that without a preliminary scientific training, which it is difficult, if not impossible, to acquire amid the noise of machinery and the general bustle of a great factory, success is likely to be obtained only by those few men in whom defects of education are only additional incentives to exertion. In the old days the pupil or apprentice worked with his master and looked after his master's interests, and in return was initiated into the details and mysteries of his business, but in these days this is no longer possible. The manager of a great commercial undertaking has no time to train his assistants, and they must come to him with that knowledge of

principles which renders it possible to employ them usefully in some department from the outset. For them the Technical college has been founded with its workshops, its laboratories, its drawing office and lecture room, and there under the direction of men of great practical experience they learn the elements of the sciences underlying modern manufacturing processes, to experiment and to observe and to draw correct deductions from their experimental work, to use machinery and to draw and design. Equipped with the training of the college the students pass out into the world able to make the most of their subsequent opportunities for gaining practical experience. The reports of the Royal Commissioners on Technical Instruction revealed how much the material prosperity of Germany and Switzerland was due to their excellent systems of education, and that in Great Britain in the matter of Technical education, an extension of the methods of education which had been initiated by the Livery Companies of London was eminently desirable to enable our manufacturers to compete on even terms with their foreign rivals.

Into the history of the development of Technical education in England it is impossible for me now to enter. Summarizing the position at the present time, I may say that the old methods have been found wanting, and that the new have not yet received the impress of authority which lapse of time will bring them. Experiments are being conducted on every hand, and much money is being spent, and probably not a little wasted. It may, however, perhaps, be of interest to you if I briefly describe the nature of the work carried on in the colleges founded by the City and Guilds of London, in which I spent some $4\frac{1}{2}$ years. It was in 1883 that the Finsbury Technical College was started, and I was among the first batch of students who joined. The day courses were arranged for electrical and mechanical engineers, and for those who purposed afterwards engaging in industries and manufactures in which a knowledge of chemical science is all-important. At that time electrical engineering was considered to have a most brilliant future before it, and most of the students were attached to that department of the college, but I joined the mechanical department, and my subsequent experience leads me to think that the training I there obtained was more generally useful to one who had no very definite ideas about his future career. Except the majority of the chemical students most of us were similarly situated, and we did our work for its own sake and not in order that we might pass examinations. Some of us entered the college with a fair knowledge of elementary science which we found very useful, and there we attended lectures on mathematics, heat, chemistry, mechanics, electricity, and

the steam-engine, but the greater part of our time was spent in the splendidly-equipped laboratories going through specially arranged courses of experimental work in physical and mechanical science, in electrical engineering and in chemistry, or in the workshops where we stoked the boiler, looked after the engine and practised carpentry and fitting and did simple work with the commoner machine tools, or in the drawing office where we learned freehand and mechanical drawing, most of the latter work being done from measurements of machinery in the workshops. We got very little encouragement to read books, and most of our information was acquired practically. The course of instruction only lasted two years, and at its conclusion the most of the students began practical life as apprentices or pupils in works or manufactories, but with a few others, I stayed on some time, which I chiefly spent at experimental work, waiting for the opening of the Central Institution at South Kensington, which was then being started by the City and Guilds of London to afford more advanced Technical instruction than could be given to the class of students who attended the Finsbury Technical College. At South Kensington I spent $2\frac{1}{2}$ years going through courses of instruction more advanced but similar to those I had previously attended. At the end of that time most of us went into mechanical engineering works, as workmen, to gain practical experience of the kind that no college can ever give, and to make the acquaintance of the British workman, whose prejudices and peculiarities it is necessary to become intimately familiar with, if one wishes to be able to successfully manage them afterwards. We were the first productions of this modern phase of Technical education in England, and in the works we were looked upon with suspicion and distrust, which, however I am glad to say, was in the majority of cases ill-founded and soon disappeared, and I believe that at the present time the majority of my contemporaries have no occasion to complain of their want of success in the various occupations they have drifted into. Since then the number of Technical colleges and students has increased enormously in Great Britain, and though sufficient time has not yet elapsed to enable broad comparisons to be made between the new and old methods of training, there is no complaint to be heard anywhere of a dearth of young men capable of carrying on responsible executive duties.

From this very brief description of the way the City and Guilds of London set about solving the problem of higher Technical education, I want you to be impressed with the fact that the instruction was mostly of a practical kind in which the student gathered his knowledge for himself and learnt more from his experimental failures, as a

rule, than he did from his successes. It was, I believe, education in the truest sense of the word, hand and eye were trained to work together, powers of observation were developed, and the faculty of close and acute reasoning stimulated by constant exercise. College examinations were held once a year, but we were particularly requested not to read for them and to go on with our work regularly and steadily to the end, an injunction we were only too glad to obey, and I am sure that taking all things into consideration we did better and more useful work without the bugbear of examinations always before our eyes than we could have possibly done had the application of such a stimulus been deemed necessary to us. In the electrical and chemical departments the instruction was undoubtedly more specialized, and I cannot help thinking, less satisfactory than in the engineering. For those who aspire to rise high in the ranks of industrial workers, the foundations upon which they are to build up their specialized experience must be broad, and as every modern industrial enterprise depends upon the more or less extensive employment of some form of motive power and machinery, so the nearer the preliminary training approximates to that of a mechanical engineer, the more satisfactory and useful it will be found to be afterwards. In the Finsbury and South Kensington Technical Colleges the so-called engineer students enjoyed in addition very favourable opportunities for studying electrical and chemical science and technology, and those who made the most of them passed out better prepared I think in the long run to achieve success even in those industries which more peculiarly fall within the province of the electrical engineer and the manufacturing chemist.

I have selected these colleges of the City and Guilds of London, not only because I can speak of them from personal experience, but because they are generally admitted, now, to be worked on lines which, so far as can be judged from our present standpoint, afford the most satisfactory solution of the problem of higher Technical education as it presents itself in England. In most of the great provincial towns there are now somewhat similar institutions, though naturally as each town is more or less the centre of some particular trade or industry there is in their courses of instruction a greater tendency to specialization, and not infrequently there are one or more departments organized for the express purpose of teaching the technics of these trades. Such departments are mainly patronized by students in some way or other intimately connected with the local trades, and in a position therefore to determine at the time they enter the college the nature of their future calling. The training they receive must be a very valuable preparation for practical work, but I should

imagine, since I cannot speak from certain knowledge, that it in no way does away with the necessity of what is equivalent to a period of apprenticeship, though in these days it may not be so styled.

Besides Technical education of the kind I have been speaking of, it has been found necessary, as I have already mentioned, to provide facilities for training the artizans who form the great bulk of industrial workers. The tendency is ever towards turning operative apprentices into mere machine tenders, or to keep them performing year in and year out the same mechanical operations at which no doubt they attain extraordinary dexterity, but which narrow their minds and numb their intelligence. To counteract this, and to enable men to learn not part but the whole of a trade, Technical schools are necessary. Not one of the least advantages which the artizan derives from them is the correct appreciation of his own position as a factor in the great industrial system of which he forms a part, which supplies the necessary stimulus to enable him to adapt himself to the changed conditions of production and to learn his trade outside the hours he is engaged in earning his living. Probably not a little of the cry for shorter hours, of which so much has been heard in recent years, is due to the fact that the younger workmen want, and in the end undoubtedly will get, more leisure time to spend, not as is so generally assumed in the public house or beer shop, but in the Technical school where they are endeavouring to render themselves more skilled and useful artizans, and therefore less dependent on the maintenance of the present order of things. "The labourer is worthy of his hire," but the demand for labourers, as we term them in England, or coolies, as they are called in India, is yearly decreasing, as their services are being replaced by machinery, and the value of their "hire" is a gradually diminishing quantity. The factory system gives employment to a large number of young people, whose services, when they arrive at maturity, are dispensed with to make room for other children, and they are thrown on the world without resources unless through the medium of evening Technical schools they have been able to find a satisfactory substitute for the old apprenticeship system and have learned something, before they become men, which renders them worth men's wages.

England is essentially a manufacturing country, and in dwelling on Technical education we are apt to forget that its agricultural interests are of immense importance, notwithstanding the fact that one-half the food-supplies of its inhabitants are imported from foreign countries, and that the progress of modern science has modified methods of cultivation and rendered it desirable, if not absolutely necessary, that

he would-be farmer should receive preliminary scientific training in the principles underlying the practices of his calling. As yet, however, the training of the majority of farmers proceeds on the old lines, and the agricultural colleges of Cirencester and Downton are largely filled with students who do not intend to cultivate the soil themselves though the prospects before them render it probable that a scientific agricultural education would be indirectly of much value. There is no doubt that the defective system of agricultural education in vogue in Great Britain is to some extent remedied by the diffusion of technical information through the medium of the journals of the great Agricultural Societies and the annual exhibitions which they hold, but it is equally certain that much of the prevailing agricultural distress is due to inefficient farming, and that the most certain means of combating successfully the difficulties caused by the low prices to which food-stuffs have been forced, by the competition of foreign countries in an open market, is to bring to English farming more scientific knowledge.

Thus far I have tried to give you some idea of the state of Technical education in England, and to show you how important and necessary it is to the maintenance of the commercial and industrial supremacy which we have so long enjoyed. The vast extension of the bounds of human knowledge has widened the field over which we must travel in our youths so much that it is necessary to economize our stock of energy and make the most of the time available. It is the aim of Technical education to accomplish this and to store the mind with useful knowledge without in any way compromising the object of all true education which is the training of the mental faculties with which we are endowed.

I am afraid I have taken up too much of the time allowed to me with Technical education in England, but it was really necessary that you should understand something about it in order to follow what I have to say on the Indian side of the question. Here the circumstances are utterly and totally different. I need not go into them in detail, as you must all be well aware of the great contrast there is between the inhabitants of Great Britain and India, both in their material surroundings and in their temperament, habits and general culture. The cultivation of the soil is the occupation of the greater part of the people of India, and the surplus produce of the land forms the bulk of the export trade. Manufactures are in a nascent state, and as yet give employment to but a small percentage of the population, whilst the direction and management of such enterprises is almost entirely in the hands of persons of foreign birth and training. Private enterprise is very nearly dormant, and the surplus wealth or capital is hoarded in the form of bullion or

jewels, and is therefore entirely unproductive. It is evident that under these circumstances there can be no great demand for Technical education of the kind I have been talking of, but such as does exist is not inadequately met by the institutions which have been developed during the last ten years. It is no use taking an uneducated person and attempting to give him a Technical training. In time, you may convert him into a rule-of-thumb workman, but it would be useless to instruct him in the scientific principles underlying his trade, as he would be unable to grasp them. A sound general education must come first, and hitherto in this Presidency, as I have already pointed out, there has been no lack of employment for persons possessed of such a qualification. In the future it is probable that circumstances will be different, and that there will be a surplus of educated men who will turn to Technical education in the hope that it will prove to them a passport into "other walks of life" in which they may earn a respectable livelihood. The spread of the study of Western science is making steady progress among the students of the University, and it may be naturally expected that they will be among the first to turn from the beaten tracks and carve out for themselves careers in the new fields which are opening out to them through the growing material and industrial prosperity of the country. At first no doubt the various Government services in which a preliminary Technical training is required, will receive greater attention than hitherto, and a superior class of students, than formerly did so, will flock to such institutions as the College of Engineering, and to them I should have no hesitation in saying that they will find there facilities for acquiring Technical knowledge of the kind required for the work which is carried on in the P. W. D. and under the Local Fund Boards, which will clearly prove that the Government of this Presidency fully and completely recognizes its responsibility in this matter. The demand for good subordinate engineers, surveyors and draughtsmen is very large, and has been very clearly expressed, and to supply the want no expense, that was really necessary, has been spared to make their courses of instruction as efficient as possible.

Some thirteen years ago I was present at the opening of the Finsbury Technical College and heard the inaugural address delivered by Sir Philip Magnus, and I remember he advised those of his audience who wanted to know what was meant by Technical education, to visit the college when the students were at work, and to apply the term "Technical" to the education going on there. Similarly I would say to you, if you want to know what Technical education in Madras really means, come and see what is going on at the Engineering College. Civil engineering and the

building trades are the occupations for which the students are mainly trained, but the importance of a practical acquaintance with mechanical engineering is fully recognized, and there would not be any difficulty in providing instruction, if there were any demand for it, to students who wished to be prepared for what may be termed productive trades and industries. In conjunction with the physical and chemical departments of your own college, it would be possible to supply a thoroughly sound Technical training suitable for electrical engineers and persons who intended to engage in the great variety of trades which are based upon chemical processes, such as tanning and dyeing, or alkali, soap and paper manufactures. At present there appears to be no demand for Technical education other than that supplied by the College of Engineering, but when it does arise you will see that preparation has been made to fully meet it. I do not mean to say that the proposals of the Committee which, in reporting on the future working of the School of Arts, recommended that special instruction should be provided in dyeing and tanning, could be carried out conveniently by any association of the colleges in Chepâk, but I am certain that such specialised Technical instruction will be of little real value unless it be preceded or accompanied by the more general Technical training which can now be given.

I have been led into this reference to the College of Engineering mainly because in the recent discussions on Technical education it has to a large extent been assumed, by one side at least, that this institution is either an appanage of the Public Works Department, or a dignified professional college, training its students for the academic courses of the University, and possessed of no desire to associate itself with the material advancement of the country.

I must confess that I hold no very extravagant views on this subject, and I do not think that Technical education in Madras will by itself effect very much. It will certainly not create new industries, and it is at least doubtful if it will revive old ones. The establishment of a Metallurgical school may some day be necessary if ever it becomes practicable to smelt the rich ores of iron which so abundantly exist in the south of India, but at the present time neither the institution of examinations in metallurgy, nor the teaching of that subject according to the most approved modern methods, will advance, in the least, the prospects of an iron trade in Madras or Bengal. The gradually increasing facilities for the profitable utilisation of water power through the medium of the electric current, may in the future effect a revolution in our methods of production, and enable us to establish important industries in this Presidency, but the difficulties in the way will not be lessened by

the fact that mechanical and electrical engineering can be taught in Madras. Where industries exist it is possible that Technical education may improve them, but if it were certainly so, and if there was money to be made out of them, it seems strange that none of the many shrewd men of business in Madras have not already turned their attention to the matter. European Technical skill of the highest quality is always available, and it cannot be expected that anything which can be done out here in the matter of education, will materially alter the prevailing conditions. On the other hand, if new industries are started, and a demand for Technical training follows, there is not likely to be any serious difficulty in meeting it, so far as is possible with the people of this country.

In the railway workshops, in the cotton-mills, in the gold mines of Mysore, and in other modern industrial enterprises which have arisen in Madras, you will find that the foremen and others in responsible positions, are nearly all Europeans, who are paid high wages, because it has been found impossible to rely on native labour for work of this kind. Something more than Technical education will be required to change the character of the Hindu race and supply those deficiencies which it now lacks, and which are essentially the birthright and possession of only dominant races. If the people of India had been cast in the same mould as the people of Japan, Technical education would have developed out here with the same extraordinary rapidity and with the same extraordinary results that have been produced in those isles of the extreme East. But the fact is, you are not a practical people, and the enervating influence of the tropical temperature in which you live for the whole year has to a large extent deprived you of that energy and go, that love of independence and responsibility which is necessary to success in practical life. From the experience of the past, we cannot be sanguine of effecting any great change in the future except by degrees so slow that generations will have to pass away before its results become appreciable. You are representatives of the intellect of your country, but you will have to associate that intellectual superiority with a similar physical superiority, coupled with manual skill and dexterity before Technical education can achieve much more than it has done already. When that time comes you will be able to manage your own affairs, and the British work in India will have been accomplished.

The rigid line of demarcation, which separates the intellectual from the labouring classes, which divides those who think from those who toil, is the main obstacle in the way of progress, and the first steps should be taken with a view to breaking down these distinctions.

Something in this direction has already been achieved, some of the lower classes are being educated, and some individuals belonging to the higher castes no longer look on manual labour as derogatory to them. The introduction of manual training into the primary schools would, if it were possible, accomplish much, and the establishment of voluntary workshops in the high schools and colleges, where the boys, who wished to do so, could practice carpentry, wood-carving, fret-work, turning, modelling or even cardboard work, would enable those who, in the primary schools, had developed any taste that way to cultivate it further. The great difficulty which must be overcome before such schemes as these can be carried out, is to provide suitable instructors, which leads me to think that Technical education must work its way downwards from the few to the many, from the higher classes to the lower, from the science students who become practical men and able to work with their hands, to the working men who want Technical training to enable them to do better work. Unhandiness, according to Mr. F. J. E. Spring, is the great disease from which middle class India is suffering, and the measures which are taken to promote Technical education can only be successful if they strike deep at the roots of this all-prevalent complaint.

To any of you who may be thinking of following the advice of Mr. Justice Subrahmanya Aiyar, of turning aside from the beaten tracks, and of endeavouring to forge out for yourselves industrial careers, I would say,—make up your minds about it once for all, do not think of keeping it as a second string to your bow to be made use of if you fail to pass some examination or to obtain admission into the public service. It is very far from being my object to deter you from such a course, but I warn you that, as pioneers, you will have many difficulties and much prejudice to overcome, and that unless you are prepared for much hard work it would be better for you not to make the attempt. No matter what you may propose to do in after life, you should at the outset acquire a practical knowledge of mechanical engineering, become familiar with machinery, and acquire a fair degree of skill in working both wood and metals. If you could get admission into a good workshop and foundry, either as apprentices paying a premium, or, better still, as ordinary hands receiving daily cooly or monthly pay, and would stay there four or five years, at the end of that time you could profitably spend a year or two in a drawing office or in the Engineering College, after which you would be in a position to take up some special manufacturing or industrial work with a fair prospect of success. As an alternative you might join the Engineering College first, but

I am inclined to think that the sooner you make the acquaintance of practical work, carried on commercially, the better. One advantage of the course I recommend is that if after a time you find yourselves unfitted for the work, you can draw back more readily and with the assurance that the time you have spent is not wasted entirely, as you will have undergone an experience which will be useful to you. If you go to the college first, you will spend two or three years there, and only after leaving it will you be able to discover with certainty the congenialness of the prospects before you. The "unhandiness" of which I have spoken is not merely lack of manual skill, but a feeling of absolute helplessness which is apparent the moment you set about practical work. It will take years to make you handy and useful men, and to enable you to accumulate that fund of experience which alone can make you resourceful, and therefore fit to be placed in independent charge of manufacturing operations, or to carry on by yourself any kind of business involving the management of machinery and the control of working men.

I have spoken to you on Technical education, knowing from experience the kind of training you have received, and I have endeavoured to put plainly before you the prospects you have of engaging with success in those "walks of life" which have hitherto been mainly filled by Europeans, who have been brought out here to fill positions it was found impossible to get suitably trained natives to occupy them. Your education has so far been mainly a literary one, but some of you have studied mathematics and the physical sciences, and as a preliminary to Technical education, such studies ought to be of great value. But you must remember that these sciences are merely tools, which you must learn to use and to apply in your every-day work, and the knowledge that you get of them, need not necessarily be deep, but it must be thorough, and in after life if you should chance to be occupied with work which requires more than a general knowledge of some particular science, your early training should enable you to acquire what you want easily and quickly. If when you leave this college you could determine the nature of your future occupation, it would be possible to give you more detailed advice, but as it is, the majority of you must prepare yourselves to take whatever may come in your way, and the course of training I have indicated will, I think, best enable you to make the most of your opportunities.

With regard to the Technical education of the working classes, the time has not yet arrived in Madras for much to be done. The standard of general education is too low among the artizans for them to be either desirous of specialized instruction, or capable of making use of it were it

offered them. For any thing better than the crude productions of the bazaar there does not seem to be any great demand. The native potters, copper-smiths, carpenters and iron-workers still satisfy the simple tastes and supply the household utensils of the bulk of the people. Changes are slowly taking place which are the natural result of contact here and there with European ideas and civilization, and it is probable that there is in progress a gradual elevation of the standard of skill, but how far this is due to the improved supply of raw materials it is impossible to say.

There is, however, besides the purely bazaar artizan, another gradually increasing body of men who have been trained under European supervision, or who have adapted themselves to some extent to European methods and requirements, and it is amongst them that we must look for the first symptoms of a demand for Technical instruction. The advantages derived from being able to draw are very readily recognized, and such institutions as the School of Arts are through their drawing classes undoubtedly doing really useful technical work.

In the centres of what may be termed European industry, as for instance the neighbourhood of Perambore, where the railway workshops, the cotton-mills, the iron-works and several other smaller industries are congregated, Technical schools might be opened with some chance of success. But to ensure this, the instruction must be of an eminently practical character, must be conveyed in the vernacular, and must be warmly supported by the employers of the locality who may be expected to benefit by the increased intelligence and skill of their employees. We have an artizan class in the College of Engineering, which is largely attended, and it may therefore be assumed to meet a distinct want, but the persons who attend it are not artizans, for Chepâk is too far away from the scenes of their daily labours for workmen to come there after a day's work is done. Technical Institutes, intended for the education of students, may be built on any convenient site and in any part of a town, but if it is hoped to draw in the working man, then they must be situated near his home. It is impossible to expect boys and men to do a day's work and then walk two or three miles, there and back, to attend evening classes. The College of Engineering in Chepâk, the buildings termed the Victoria Technical Institute in the Pantheon Road, or even the School of Arts and Industries in the Poonamallee Road, are all too far away from the homes of those artizans who might be expected to benefit from attendance at a Technical school, for any hopes to be realized that they will be attracted to classes held in any of these buildings. In the North of Madras it might be otherwise, and if I might be permitted to make a suggestion to the Council of the Victoria Technical Institute, I

would advise them to start work in the Perambore division of Madras, and endeavour to meet the modest demands for Technical instruction of the large number of artizans who work there. In Bombay there is a similar Institute working, as might be expected in a city of such great manufacturing importance, on a large scale, and supplying, if one may judge from the numbers attending it, a much needed want. On a smaller scale a school in Madras, founded with the avowed object of affording instruction to those engaged in the mechanical arts, teaching its students that which will be useful to them in their daily avocations, and making no attempt to prepare them for the ordeals of the examination room, is an experiment which such a body as the Victoria Technical Institute might undertake with the funds at their disposal, and I cannot help thinking that, directed by a council composed of so many men, eminently in touch with the industrial enterprises of Madras, it would meet with great success.

In conclusion, I must remind you that I have not said one word about the Technical training of those engaged in agriculture, the occupation of by far the greatest number of people in this Presidency. Expert opinion seems to differ very much as to what should be done, how it should be done, or even as to whether it is necessary to do any thing at all. At any rate the questions which require solution in connection with agricultural education are so very different from those I have just now been dealing with, that though I fully recognize that in this country it ought to be the most important branch of Technical education, I do not think the present is a suitable occasion on which to treat it.

After the lecture, the Chairman, Mr. R. G. Orr, made the following observations :—

When two or three days ago he had accepted the invitation to preside he did not sufficiently consider all the ground the lecture might cover, and therefore he was not prepared to deliver any elaborate comments upon the able, interesting and out-spoken lecture which Mr. Chatterton had just delivered. During his (Mr. Orr's) absence in England considerable discussion had been carried on in Madras about Technical education, of which he had seen nothing. But he supposed and gathered that there was one party who wanted what was called Technical education, and another that dissented from that view. He remembered in the Jubilee year there had been a great deal of exuberant talk about Technical education, and that remarkable building on the Pantheon Road was the outcome apparently of the excitement which then existed. The lecture of Mr. Chatterton certainly dealt with the subject and the difficulties which surrounded it with much modera-

tion and sound common sense. He did not know whether the advocates of Technical education in Madras and the dissentients were agreed as to the meaning or the definition of the term. Mr. Chatterton limited it to "education in the arts and sciences which have a special bearing on subsequent professional work of the person who receives it," and he excluded "teaching the practice of any trade or industry or employment," at least for the purpose of his lecture. It was true that lawyers, doctors and educationists and men in other liberal professions were said to receive a Technical education; but it seemed to him (Mr. Orr) that it was necessary to differentiate between a purely literary, academic education and an education which could not be obtained without the practical seeing and handling of material things—an education which implied or involved the use of two or more of the five senses combined with manual work. If that view were taken, then "teaching the practice of any trade or industry" could not be excluded from the term Technical education. There were indeed few trades or industries which could not be improved by having the light of education thrown upon them. But the point after all was where was the demand in India for Technical education? He agreed with Mr. Chatterton when he said that there was none. Where were the large industrial establishments languishing for the want of trained Directors or Managers? Where was the demand in the bazaar for a better finished article or an article better designed for its use? Though doubtless there were little improvements noticeable, it could not be said that there was a real demand. Kerosine oil was the one article brought from the West which was gradually adopted in substitution of the old bazaar article, and was to be found in every bazaar of the most remote districts. But that was not due to Technical education. It seemed to him that the cry for Technical education was due to the need to find employment for the thousands of educated men who were being turned out of the Universities and Colleges. He feared that all those students who had passed out were too old to become artisans or to learn Technical education. Moreover, most of them wanted "pay" more than to learn a trade. They wanted to learn a trade and to be paid for it at the same time; but that was obviously absurd. In his own experience he was sorry to say that young men who had been for many years in school were simply unfitted thereby to use their eyes and hands. It would be much better if their education were to cease at about 12 years of age and then that the money their parents would otherwise spend on higher education were spent to find them places in workshops, or, better still, in following the vocation of their parents. Many of the successful men among the middle classes in England commenced their life in a humble way in workshops. In former times, ap-

prenticeship was in vogue, but it had almost ceased to exist now. Boys almost invariably went to apprenticeship at 12 years of age and continued till 21. Apprenticeships were too long in these days, but the men turned out really knew their work splendidly. Now-a-days they had nothing of the kind. The world was going too fast, and everyone wanted people ready to hand who knew something. They had no time to teach them work in workshops. As to Technical Institutes—in England they spent large amounts, millions sterling, in the establishment of these schools. In England and in Germany, where those Technical Institutes were economically conducted, they did not of themselves pay, and never could commercially pay, and never were intended to pay. Immense sums were being spent on buildings, equipments, salaries, upon cost of wood, iron, brass, steel and other materials which the students used and spoiled. But it was believed that all this outlay would result in economic and improved processes and methods of work that would enable the country to hold its own against competition. When he was in Glasgow lately he saw a most remarkable instance of the result of Technical education. It was in the application of electricity to a yard in which were stocked immense quantities of cast-iron pipes of all sizes. For 30 years the cranes and winches were worked in all parts of the yard by means of steam. Those machines moved about making a terrible noise. But a young man of 26 years proposed to substitute electricity for steam and he designed his own plans for electric dynamos and gas engines to work in that huge yard. The result was quite extraordinary; and the ease with which everything was done afterwards was quite remarkable. It had had its effect upon the workmen themselves. In place of the din and noise all day long the work was now conducted like magic and was done with less expenditure. It was an astonishment to the oldest men in Glasgow—they could scarcely believe it—that electricity could be so used with less expenditure than steam. One means he thought that the Government of India might adopt to encourage industries and manufactures in India was to do what the Government in Australia had done many times, and that was, to offer large rewards of £5,000 and £10,000 for the first substantial quantity of some new manufacture introduced into the country. For the first thousand yards of tweed produced in Australia a reward of £10,000 was offered. This, of course, had considerable influence in encouraging men to come forward; and the result was that industry had become strongly established in Australia. Another way in which the industry of this country could legitimately and directly be encouraged and improved was to require the Secretary of State for India to rescind that most obnoxious order by which India was not allowed to buy in India stores and

supplies of any kind if they were above the value of Rs. 10. To some extent they were relaxing that order, but it was in a half-hearted way. It was excessively unjust that India should not be allowed to get her own requirements from this country, especially in the direction of local productions. In this country there were large numbers of very clever workmen of every kind. He had brought for them to see a most beautiful padlock made in one of the Zemindaries of the South, in a very small out-of-the-way place by a man, really in a manner that could not be excelled in England or anywhere else (Cheers). It was a perfect piece of work, and it was so made that one key would only unlock, another would only lock, and a third would both lock and unlock it. It was sent up to Northern India, where it had obtained the first prize. It was a splendid thing, and it only showed what this country could do. It was also a very cheap lock. He was going to say that it was very likely that the sons of this locksmith were students in some College. The probability was that they had in their own hands and fingers the same knowledge that their fathers possessed, but they threw all that away and all their intuitive manual skill and confined themselves to pointing a lead pencil or a quill pen. Beyond that he did not suppose any of these students in schools were able to do anything with their hands. If they wanted to drive a nail into a wood he expected they would send for another person to do it. It was a very sad thing. This locksmith no doubt made his money, but his great reward and satisfaction was in making these locks. It was a pleasure which nobody could rob him of, and when a man could do such excellent work he could do almost anything. He had also brought them another instrument—a model lever escapement—which was brought from Germany and was a product of the Technical school. A young relative of his went over to Germany and worked at a very excellent Technical school there for two years, where he learnt everything in connection with turning, filing, brass work and steel and electricity, plan drawing, mathematics, etc. He did all that within two years and produced that work which he now placed before them. That was what could be done under proper tuition. He was not paid for doing that, but had to pay for learning to do it. In Germany they had a rule of charging foreigners 10 per cent. more than any one else; that was a very moderate sum to pay, however, because in the Institution students were not only looked after in their work hours, but also in their spare hours and kept under strict discipline.

THE MADRAS TEACHERS' GUILD AT THE COLLEGE OF ENGINEERING.

FROM A VISITOR.

At the kind invitation of Major Love, about eighty members of the Guild met at the College of Engineering at 3-30. P. M. on the 28th ultimo. They were welcomed by Major Love, and before he took them round the premises and the workshop, he read the following brief account of the working of the College.

" Before going round the class rooms and Laboratories, it will be well, I think, to offer you an exceedingly brief description of the kinds of training given here. These are five in number, (1) for Engineers, Civil and Mechanical, (2) for Engineer Subordinates, (3) for Draughtsmen, (4) for Surveyors, (5) for Artisans and Maistries and the sons of such persons. These names indicate the positions in the engineering profession for which the students of the various classes are trained, except in the case of the artisan class. We do not attempt to qualify persons to become artisans or even maistries, but merely to give some useful training to persons who are already artisans or maistries, or who wish to become such eventually. Except for this class which is an evening one, all the classes are recruited by competitive examinations. During and at the end of their courses, they are examined by an independent Board of Examiners appointed by Government, and on the results of this examination, diplomas and certificates of qualification are granted by the College.

" Prior to entrance examination, the candidates must possess certain general educational qualifications. For the Engineer Class, they must have passed the F. A. Examination, for the Engineer Subordinate Class the Matriculation or Upper Secondary, and for the Draughtsmen and Surveyor Classes the Lower Secondary. A large percentage of the students in each class has passed an examination higher than is insisted on. For instance, many, I may say most, of the Engineer students have passed the B. A. Degree Examination The competition for all the classes except the Engineer Class is considerable, 100 candidates for 30 vacancies being an ordinary proportion.

" The Engineers have a course of 3 years in the College, 1 year in a workshop, and of another year in practical engineering work in the Public Works Department in the case of Civil Engineers. The Mechanical Engineers have to go through a course of 2 years' practical work in a workshop. The Engineer Subordinates have $2\frac{1}{2}$ years in the College, and 1 year in the Public Works Department. The courses for

these two classes are somewhat similar, but the teaching in the senior classes is carried to a somewhat higher standard. It comprises Mathematics, pure and applied, building construction and drawing, hydraulic engineering, machine construction and drawing, surveying and estimating. The Engineers take also chemistry, geology and heat. The work is generally of a practical nature—graphic methods are used in applied mathematics, construction is taught chiefly by drawing, and the drawings are frequently made from measurements of the objects themselves, or of models of them. Survey Field-work is carried on twice a year in camp, somewhere within 20 miles of Madras, the camp being pitched for three weeks on each occasion. The Engineers have practical work in the Engineering, Physical and Chemical Laboratories, and in the workshops, and the Engineer Subordinates in the first and last of these. The course for the Engineers is also regulated to meet the requirements of the University Examinations. During the Practical Course, the students are drafted out to different Public Works Divisions, so as to see and practise construction. They have also to go through a riding course.

"The draftsmen and surveyors have each a course lasting two years. The former, after a preliminary course of geometrical and free-hand drawing, work at drawings of buildings, bridges, and machines, chiefly from specifications and measurements. They also devote a considerable portion of their time to estimating, *i. e.*, taking out quantities from plans.

"The surveyors work at surveying only, beginning with the chain, going on to the plane table, the prismatic compass, the level, and finally the theodolite. They accompany the senior classes to the survey camps, and do besides a great deal of field-work in and around Madras.

"Work goes on almost daily, from 6-30. A. M. to 8. P. M. The early mornings are devoted to workshops, survey-field work, gymnastics and drill. The indoor hours are from 10 to 1, and 2 to 4-30. After this hour there is more gymnastics. At 6 the Artisan Class commences its sitting which lasts till 8.

"As regards the numbers in the College, there are about 20 in the Engineer class, 50 or 75 in the Engineer Subordinate Class according to the time of year, 60 in the Draughtsman Class, 50 in the Surveyor Class and 35 in the Artisan Class. These numbers, except in the Engineer Class, might be greatly increased if the accommodation and staff permitted.

"The great employer of the passed students is the Public Works Department, but the Local Boards, the Municipalities, the Survey Department and the Railways, all absorb considerable numbers. An Engineer can generally obtain Rs. 100 or more at the outset, a Subordinate Rs. 60, a Draftsman Rs. 30, and a surveyor Rs. 40.

"The instructional staff consists of a Principal, a Professor of Engineering, a Professor of Mathematics, one Chief Instructor in Engineering, another in Surveying and Drawing, five assistant instructors, and a gymnastic instructor. The drill instruction is imparted by the Military students, a few of whom, non-commissioned officers and men of British Regiments, are admitted annually to the Engineer Subordinate Class."

The visitors were then taken to the class rooms, the library and Reading Room. Some of the specimens of draughtsmanship were very good and won the admiration of the visitors. The Model Room was next visited. Messrs. Chatterton and Hanumanta Row very kindly showed the visitors some interesting models and apparatus and briefly explained their uses and their *modus operandi*. The room contained a choice collection of samples of building materials, buildings, bridges, and notably the Kistna Railway Bridge, Irrigation Works such as anicuts (the Kistna Anicut at Bezwada being very interesting in its way) locks, weirs, &c. There were also surveying and measuring instruments, meteorological instruments, photographic apparatus, and other apparatus required for the efficient teaching of mechanics, hydromechanics and the allied sciences.

In fact, the arrangement of the models in that spacious hall on the ground floor of the Southern Building was excellent. The visitors were then conducted by the Eastern gate to the road in front of the Eastern side of the College where a class was engaged in field survey. A huge honeycomb in the ceiling of the eastern portico formed the theme of a pleasant chat.

The tour ended in the workshop, where the various machines worked by a 5-horse power attracted the attention of the visitors. The Engineer Class students were at work here, some engaged in planing, some in turning and some in boring holes. The lathe, the milling and planing machines were passed by, as the central feature of the workshop is the newly erected 100 tons testing machine at work in the western side of the hall. It is said to have been fitted up at a cost of Rs. 30,000. The audience was treated to a test of the hardness of two boiler plates. Mr. Chatterton had them attached at one end to a hydraulic ram, and at the other to one end of a long lever having a 2 ton weight for the movable weight. By means of steam power, the 2 ton weight was moved from one end of the lever to the other end, while at the same time the hydraulic pressure was gradually increased. By a careful adjustment of the two forces applied to stretch the plates, the end of the lever was kept in the floating position. At the same time, the elongation of the plates and the amount of the power applied were re-

corded by a self-acting pencil on a ruled sheet of a paper covering a rolling cylinder. It was very interesting to note the elongation and the lateral contraction of the plates, which, after a while, became quite visible to the naked eye. The strain continued till, when 42 tons weight was reached, the bars suddenly snapped.

Then Mr. Stone, President of the Guild, thanked Major Love, Mr. Chatterton and the rest of the staff of the College for the kind reception accorded to the Guild, and the very interesting and instructive programme that was gone through that afternoon. Major Love briefly responded and the meeting came to an end.

TEACHERS' PROVIDENT FUND.*

BY RAO BAHADUR V. KRISHNAMA CHARIAR.

It is a fact not generally known perhaps that there are at this moment over 3,000 Assistant Masters or junior teachers in Schools for Secondary education, and 1,000 more in Girls' Schools of the same Grade, making a total of 4,000 teachers; and there are no less than 7,000 teachers in Upper Primary Schools, to say nothing of the poor Lower Primary School teachers going through downright drudgery for an allowance between Rs. 5 and 10 a month, under the system of Payment on Results. I shall confine my attention to the graduates and undergraduates of the local University trained in the Teachers' College, and other Normal Schools or holding certificates of the Educational Department, or already recognised as efficient teachers—all engaged in Secondary Schools after having studied and passed a severe examination in the educational Anthology of Pestalozzi and Froebel, Arnold and Quick, Bain and Spencer, and all toiling at their posts on humble stipends with very little change in the daily routine and without the prospect of rising to the lofty office of Headmaster of any school, and who can turn for advice or help in any little trouble or difficulty to none except the managers of their schools in the rural districts, who can only be approached with extreme discretion,—to say nothing of the salaries that fluctuate at the whim of some officials, and of payments not always made when due. It is to the personal interests, feelings and claims of these

* Paper read at a Meeting of the Madras Teachers' Guild held on the 17th April 1896.

junior members of the profession that I wish to call attention; it is for them I seek your sympathy and support. I trust that this limitation of the Provident scheme will be borne in mind in the discussion which may arise on this paper.

As a historical fact connected with the profession, I may mention for the information of the junior portion of the audience that a whole generation of School Inspectors and Teachers has come and gone, since the memorable Despatch of 1854 became the law of public instruction in India. Under that Despatch, an Educational Department was created, and a few Colleges and many Schools of the Secondary Grade were established during the last days of the East India Company; teachers of high attainments and marked ability either trained or having an aptitude for teaching were employed in those schools. I can well recollect how the few educated men of noble impulses and force of character then available were welcomed to co-operate with the Government in their attempt to remove the mass of ignorance which overspread the land, and I recollect also the enthusiasm with which the call was answered, and the devotion with which the public-spirited men selected, gave themselves up to their work. Like the officers of the Inspectorate, such teachers were recognised as direct servants of the State, and they received direct payment both as pupil teachers and as certificated teachers; and as a natural corollary to all this, the Government undertook to provide a pension for them when aged or superannuated. All this is a matter of history, and I re-state it here to show that the principle at first adopted, though not as a permanent measure, made the administration of the Educational Department one of the twofold merit of being consistent in its parts, and of securing the co-operation of the teachers and the Government. But the report of the Education Commission some ten years ago marked a sudden move taken by Government in retracing their steps; and the changes introduced then are familiar to you all as involving a revulsion from the principle which was adopted in the early legislation on education; and the mode of carrying out this change has affected the position of teachers as a body. After the transfer of all the Government Second Grade Colleges and District High Schools and Taluq Schools to Municipal and local bodies, the teachers have felt the lack of sufficient resource in these local or aided schools, and the narrowing influence of the Grant-in-aid rules. Teachers' salaries became liable to variation in the interests of "supply and demand," and they lost confidence in Government employ and the hope of a pension. Several well qualified teachers changed their sphere of labour, because a retiring pension and other advantages of the Government service have been denied under the Grant-in-aid rules, and the regulations made for the management

of Municipal and Local Fund Schools; and all professional zeal, without which the highest educational results cannot be attained, appeared to be crushed out. A general depression of salaries in the Aided schools has resulted in the loss of the best teachers, who could get other and more lucrative appointments, and in a decrease in the supply of suitable candidates with practical skill in teaching to take their place. I have, therefore, felt a sense of surprise that teachers trained and certified after examination as duly qualified for the profession of teaching have been utterly disunited, and with all their opportunities for usefulness, and with the many sources of pleasure in their work, teachers have been able to do nothing to improve their position. On the contrary, they have been bemoaning their fate and even saying that they would never bring up their children to the profession, and that they could not safely recommend their students to adopt it.

The reason of all this is chiefly the want of a centre round which teachers might gather and advise with each other, and a point to which they might focus their efforts so as to discuss educational topics, less from a local or a sectional than from a professional stand-point. Professional *esprit de corps* has been almost absent from the body of teachers, though I have seen several earnest men, at times, giving public expression to their regret at the want of organization among them, and of a professional basis upon which teachers of all classes and sects might unite. It was therefore opportune that, at a critical point in the history of the scholastic profession, the L. T. Degree was introduced by the University, and a band of kindly disposed and public-spirited educationists and leading schoolmasters recently came forward to bind you all together in the great brotherhood of the teaching art. It cannot be said that I am exaggerating the worth of the schoolmaster in relation to his work, if only a thought be given to the arduous nature of the teacher's profession, the sacredness of his duty, the great vicissitudes of his fortune, and the startling contrast between the fond hopes of the young teacher at the Training College, and the stern realities of actual life. If those who seek to enlarge the understanding and to minister to the intellectual gratification and the moral improvement of youths, who endeavour to bring up the rising generation as loyal and intelligent subjects, and who work with their brain, their tongue, their lungs and their spirits—I say if these teachers were exempt from "the ills which human flesh is heir to," they would be the happiest persons or "the very angels and ministers of grace." Many, very many are the claims of the teacher on the friendly remembrance of parents and the public, while he figures in the schoolroom and occupies the public eye. But what is his position when the

public eye has lost sight of him, when he is overtaken by age, and when sickness or infirmity suddenly puts an end to his useful and arduous work? What becomes of his children when he, as their bread-winner, is suddenly snatched away by the cruel hand of death? If the managers of Aided schools cannot give a pension to aged and incapacitated teachers, are these servants of the public for whose retiring allowance the Grant-in-aid Code makes no provision, to be left to the penury and want which will possibly be the future lot of many of them? Is no other means available before the time of difficulty comes, to alleviate, if not to fully relieve, the wants of these deserving and afflicted members of the profession?

This paper is an endeavour to answer the question. I have already said that the Teachers' Guild is a good organization calculated to awaken a sense of professional feeling among teachers; but its growth to be casting must be somewhat slow. I believe it is of great use at the present time, and will be increasingly useful in the future. The first and largest work before it, however, is to bring about a feeling of mutual confidence between the members of the profession, to enlighten the public upon the worth and nature of the teacher's work, and thus to raise education in the esteem of parents more than ever. And as time rolls on, the number of members will increase, and it will exert its influence more and more in purely educational matters. More experience in these gatherings of teachers will produce a wholesome modification of one's views; charity will arise, and we shall all learn to respect the opinions of those who may differ from ourselves. Representative teachers from all parts of the country will meet face to face once at least in a year, and under the rules of strict debate, conduct discussions in a way calculated to give a greater breadth of view and a deeper sense of public responsibility to those who take part in them; and mutual respect and esteem will take the place of suspicion and jealousy. Teachers will increase their friendly relations with one another, and this will react beneficially upon their work as educators or distributors of knowledge; and the influence of the best men will result in a moderation of thought and experience, and the old walls of separation will be broken down and be replaced by the benefits of friendship and co-operation.

If the Guild be rightly used, all unemployed teachers, trained and certificated and other men skilled in teaching, who wish to obtain a professional recognition, should take advantage of the rules framed by the Guild for establishing a public register of teachers, and secure their enrolment on the prescribed terms of membership. The profession is

large enough to sustain a flourishing Fund; and a basis for a professional structure having been laid, what remains is to build upon it. But something more is wanted to give its members an additional and tangible bond of union.

To my mind, the scheme of a Provident Fund to afford to the army of assistant teachers some pecuniary advantage would provide such an inducement or superstructure; and as the Council of the Guild desire to provide a scheme that would greatly extend its influence and usefulness, I would suggest the formation of a Provident Fund in connexion with the Guild, so that teachers may be attracted to it as subscribing members, in order to secure to themselves adequate assistance in times of sickness, and some independent provision for old age. The part which pecuniary benefit plays in this Provident scheme will be so far-reaching in its effect upon the profession that I expect it to induce Mofussil Schoolmasters to join the Guild at once.

Without further preliminaries, therefore, I shall proceed to draw your attention to the principles of such a scheme and to sketch an explanation of its working, as follows :—

I. 1. *Principles.*—That a Provident Fund be established in connection with the Teachers' Guild on the Mutual Benefit principle.

2. That the membership of this Common Fund be voluntary, and that its benefits be confined to the members of the Guild.

II. *Scope.*—That the scheme should provide Funds to assist teachers during sickness or other temporary distress, and old age allowance or proportionate benefit when incapacitated by infirmity from following their profession, and therefore most requiring and deserving assistance.

III. 1. *Management.*—That the management of the Fund be vested in the officers of the Teachers' Guild, and such other subscribers to the Provident Branch as may be members of the excutive or specially elected from time to time as Trustees of the Fund, to watch closely its business and see it carefully conducted, so that, under the existing organization of the Guild, the Provident Branch may be economically managed.

2. I am not sure whether Branch Associations of the Guild have been formed at the various Educational centres. I consider that the most fruitful and successful method of strengthening the Guild and extending its influence is the establishment of local agencies in the districts where none exists at present. There must be several native teachers in each school station or district, and it only needs one or two enthusiasts there, to take the matter up in earnest and bring the work and advantages of the Guild under the notice of local teachers; and some

few members may be found to start the local agency and secure members for the Guild from every side; and when such agencies are formed, they may well be utilised for carrying on the Provident Scheme in the districts beyond the limits of Madras. It should further be distinctly understood that the expenses incurred in working the scheme should be borne finally by the Provident Fund, and any advances to meet the preliminary expenses should be afterwards repaid to the general Fund of the Guild.

It is highly important that the meaning of the expression "Mutual principle" should be clearly comprehended. By this expression, I understand that system to be one which provides only for a Common Fund to which all teachers contribute and from which all who require help receive assistance. It has little of the commercial and much of the benevolent idea contained within it; and consequently this purely mutual branch of the Guild will have its own common fund, its own rates to suit the various means of different subscribers and its own rates of relief. Likewise any surplus money accruing in future will become the property of the contributors on the mutual system. Similarly, the profits of the Fund can be distributed to the members either in the form of increased benefit or reserved as a set off against possible losses; and any member is permitted to withdraw or remove his contributions without forfeiting his benefits. The Fund on this Mutual plan affords the facilities of an ordinary "Savings Bank" and encourages the habit of thrift among the younger teachers, in addition to the provision for old age and sickness. There is strong evidence in favour of its soundness and success in the case of similar funds in Europe, and the Madras Railway Provident Institution out here.

Another good feature that marks the Provident Scheme is the benefit of an endowment or grants to widows or widowers or orphans of members. Such endowments, I may mention, are by law protected from demands of creditors.

The principle of establishing a Provident Fund in connection with the Guild having been affirmed, I would suggest for the present the adoption of rules.

It is suggested that the Teachers' Provident Fund should consist of 750 rates of Rs. 140 each, making a capital of over a lakh of Rupees. Some such limit is absolutely necessary for the purpose of registering the fund with Articles of Association and limiting the liability of members under the Indian Company's Act VI. of 1882. It might also be contended that it would be unwise to allow a few teachers to hold a

considerable stake in the Fund by taking an unlimited number of shares, thereby introducing a select proprietory into the concern.

You may all be sure that nothing will be done without ample discussion and strict examination of the issues involved; and I may add that though the capital may seem to be pitched somewhat low, this is necessary to make the Fund absolutely secure at the outset and a success in the future.

This capital may be increased if necessary by a special resolution of the contributing members, if a profitable and safe method of investing all unexpended money be devised. This question of the remunerative employment of all unexpended money presents a difficulty that has puzzled me much, but it does not seem insuperable when the subject is discussed with experts. It might perhaps be expedient to create a Loan Branch under the control of the Guild itself or to open a Depository of school materials for sale under proper management at prices beneficial alike to the school-going population and to the Fund.

The Council of the Guild may well be relied upon to use the best means, perhaps by the appointment of a special committee of a thoroughly representative character, to consider the details of the scheme I have submitted, to detect and mend any loop-holes—as it is impossible to say that in any human work there may not be a loop-hole that may not escape observation,—to solve possible objections and future difficulties, and to recommend the principles upon which it may appear to them most safe and practicable to establish a Provident Fund, for the benefit of Indian teachers.

Ladies and Gentlemen, whatever may be the final issue of the Guild's action in this matter, permit me to repeat again that I have been prompted by no selfish motive but purely by my experience and knowledge of the native teachers' needs and difficulties, thus to urge the Provident Scheme on the earnest consideration of teachers generally, and particularly those who have not yet insured their lives or joined similar Societies; and I am glad to know that the object of the Council of the Guild is to awaken a sense of professional feeling in all Educational matters and in districts where the Guild is now unrepresented. True, the Guild, started for securing Educational efficiency, and lift up especially the subordinate part of the scholastic profession to its proper level, can do without a Provident Fund; but no Provident Fund which is intended to improve the pecuniary and social position of the teacher can do without the Guild. I urge on all teachers, therefore, not to remain outside the Guild, whose attitude towards non-members is not an attitude of

appeal, but may rightly be regarded as one of sympathy and compassion. If others forget, let it be for us to remember that, great or small, well paid or ill paid, we are bound together in one great brotherhood. As the rising generation of teachers, it behoves you to learn the habits of thrift, not to waste the spare rupees when you are young. Think of the possibility of premature old age, of the days of sickness and adversity, and resolve to say to yourselves, "while I am earning a salary, let me give what I can spare to a Fund which shall be open to every teacher who subscribes." No matter what one's rank in the profession, or whether his school is large or little, let him not depend on an appeal to the public when he gets weary and poor. Let all join the Guild and subscribe to a self-protective Fund organised under its auspices like its Provident Branch, and let the two institutions, in their labours for professional independence, work side by side and be a strength to each other. By becoming a subscriber to the Provident Fund, the teacher will place himself in a position to secure his own right at no man's wrong; and when in old age or in times of sickness, he prefers his claim to the Provident Fund, he will be entitled to say—"I do not compromise my independence herein; I do not disgrace my family and children; am neither a beggar nor a suppliant; I only come to reap the harvest from the seed that I sowed long ago." If this principle of Self-help and Mutual benefit be kept in view, and if all the junior members of the profession join the Guild and look upon their small subscriptions to the Provident Fund as money well laid out, for the benefit of the aged and needy, the profession cannot fail to win the esteem of the public and the recognition to which it is entitled at the hands of Government by the importance of the teacher's work and by his services to the country. It might, at any rate, be possible for the Council of the Guild to sanction a grant from its own general Fund to the Provident Branch when necessary, to enlist in its welfare the aid of the leading members of the profession, and also the interest of the managers of endowed schools and of affluent friends of education throughout the country, in order to afford some measure of relief to the needy and deserving members of the profession.

Ladies and Gentlemen, the time placed at my disposal is already exhausted, though I feel that the question is one that might exhaust several sittings. My effort has been rather to clear the way for discussion than to establish conclusions, and I now leave this imperfect attempt to bring before you a subject of vital importance to the teacher's profession, to be handled as freely as you please.

EXAMINATION PAPERS.

DEPARTMENT OF EDUCATION.

April 1896.

WRITTEN EXAMINATION FOR TEACHERS' CERTIFICATES. SECOND-GRADE COLLEGIATE.

METHODS OF TEACHING, ORAL TEACHING, AND NOTES OF A LESSON.

1. State and illustrate by an example the advantages of drawing a map on the blackboard, in the presence of a class, in teaching Geography.

2. State how far oral instruction is desirable in the teaching of History in Upper Secondary classes and to what extent text-books may be used.

3. Explain as to a class the process of division of one number by another by factors, and the method of finding the remainder, showing clearly by an example the reason of the latter process.

4. (*a*) How would you explain to a class what is meant by the plan of a room?

(*b*) Having explained what a plan is, how would you proceed to make a class understand what is meant by the map of a country.

5. Suppose you had to teach a class the following proposition :—

> "On the same base and on the same side of it there cannot be two triangles having their sides which are terminated at one extremity of the base equal to one another and likewise those which are terminated at the other extremity equal to one another.

How would you vary the enunciation of the proposition so as to make the class comprehend its meaning clearly? Write full notes on the proposition.

6. Suppose you were appointed Headmaster of a Lower Secondary school and you found the English handwriting of all the classes bad, what steps would you take to improve it?

7. Write full notes of a lesson on the following extract, stating for what class the lesson is intended :—

> 'Breathes there the man, with soul so dead,
> Who never to himself hath said
> "This is my own, my native land!"
> Whose heart hath ne'er within him burned,
> As home his footsteps he hath turned,
> From wandering on a foreign strand!
> If such there breathe, go, mark him well,
> For him no minstrel raptures swell.'

ORGANISATION, SCHOOL REGISTERS AND RETURNS, AND OFFICIAL CORRESPONDENCE.

1. What are the main objects to be kept in view in designing the plan of a school building? Give reasons for your answer and draw a plan of a building suitable for a Middle school, with 120 pupils on the rolls.

2. What are the main points that ought to be attended to in the preparation of time-tables?

3. What are the qualifications prescribed by the Madras Educational Rules for the various members of the staff of a recognised Middle School?

4. Give an abstract of the Inter-School Rules. What evils are they intended to remedy?

5. What are the main points to be attended to in the classification of pupils? What subjects should be the main tests for settling promotion from class to class in a Primary, Middle and High school, respectively? Give reasons for your answer in each case.

6. What returns does the Educational Department require from an aided Middle school? Calculate the "loss of income by levy of fees below the standard rate or from grant of free scholarships," which forms part of Financial Statement B given the following particulars:—A Third From (in which the standard term fee is Rs. 11) contained 30 pupils in April, May and June, 28 in July, 32 from August to December, and 29 from January to March; fees of Rs. 2 *per mensem* were charged, but 4 pupils were free and five half-free from April to December, and 6 pupils were free from January to March.

Show the calculations by which you arrive at the result.

7. Fill in the accompanying form of Attendance Register for a class of 12 pupils for a month of 30 days, given the following particulars:—Saturdays and Sundays are holidays; the 1st is a Tuesday; there is a native holiday on the 14th; *B* leaves after school on the 15th, and *F* after school on the 17th; *K* is admitted in the afternoon of the 16th, and *L* in the morning of the 21st; *G* is absent without leave on the 7th; *E* is absent through illness from the 7th to the 21st, both days included; and *H* obtains leave on the 9th and the 15th.

Also make an accurate calculation of the average strength and attendance of the class for the month.

8. Write, as headmaster of a Middle school, an official letter, complete in every respect, to the manager of the school, reporting on the inspection of the school and mentioning defects pointed out by the Inspector and suggesting how these may be remedied.

DISCIPLINE.

1. Show how a healthy state of public opinion in a school is of great assistance to a teacher in maintaining discipline, and mention in what ways such a state may best be created.

2. (*a*) For what reasons is it desirable that the headmaster of a Secondary school should frequently take part in the teaching of the lower forms?

(*b*) Point out the injurious effects on the discipline of a school of bad feeling between an assistant and the headmaster.

3. Show, by means of two illustrations, the importance to a teacher of a knowedge of child nature in forming an estimate of a pupil's conduct.

4. What is meant by habit? Show the importance of uniformity of discipline for the formation of good habits.

5. (*a*) In what ways are gymnastics and drill aids to school discipline?

(*b*) How may the curiosity of children be used as a means of governing them?

6. How are the following faults in teachers subversive of good discipline?

(1) A noisy manner in teaching.

(2) Partiality in the treatment of pupils.

(3) Want of proper preparation before teaching.

UPPER SECONDARY GRADE.

METHODS OF TEACHING, ORAL TEACHING, AND NOTES OF A LESSON.

1. Write full notes of a lesson on *one* of the following subjects:

(1) The food-grains of India, to Class IV.

(2) The physical features of Arabia, to Form I.

(3) The first Mysore war, to Form II.

(4) Compound proportion, to „ III.

2. Write a brief summary of the information which you would seek to impart to a class of infants in giving an oral lesson on gold. Write also a summary of the information, which you would think it necassary to add in each case, in giving an oral lesson on the same subject to Classes I. and II. respectively.

3. What are the chief characteristics of good recitation, and how would you endeavour to secure them in teaching your pupils to recite? Illustrate your answer by an example and say for what class it is intended.

4. (*a*) Compare the advantages possessed by the pupils of a third class, who have been taught Kindergarten in the three lower classes, with those of pupils who have had no practice in Kindergarten.

(*b*) What dangers may arise from a prolonged use of Kindergarten teaching and how may those dangers be avoided?

5. What benefits should result from the teaching of drawing? Describe the way in which you would conduct a first lesson in drawing.

6. What are the special uses of recapitulation in giving an oral lesson? When should recapitulations occur, and why? Illustrate by examples.

ORGANISATION, SCHOOL REGISTERS AND RETURNS, AND OFFICIAL CORRESPONDENCE.

1. Describe a school-house which you would consider a perfect one for a complete Lower Secondary school with a complete Primary department.

2. Give a concise list of the furniture and apparatus desirable in the above-mentioned school for—

(*a*) The Secondary department. | (*b*) The Primary department.

3. (*a*) If each class and form in that school had a separate teacher, how many teachers would there be on the staff?

(*b*) What should be the qualifications of the headmaster and of the last assistant in that school?

4. Draw up time-tables for the highest form, for the lowest class, and for the headmaster in the above-mentioned school.

5 (*a*) Explain the use of the Admission Register.

(*b*) Draw up, on a separate sheet, a specimen page from an Admission Register.

6. As head of a Lower Secondary school, write, fold and docket a letter to the manager, pointing out a defect in the school-building and suggesting a remedy.

DISCIPLINE.

1. Mention the chief considerations that should determine the kind and degree of punishments inflicted on school-boys.

2. To what extent may rewards be helpful in school education?

3. How should the moral training of children, apart from religious instruction, be effected in schools?

4. What peculiar characteristics of childhood may the teacher avail himself of in teaching?

5. Explain and remark on the dictum: "Different natures need different treatment."

EDUCATIONAL PERIODICALS.

THE JOURNAL OF EDUCATION, (London), April, 1896.—The article on *The New Education* contains a contrast between the two methods of teaching followed in every branch of knowledge, "the first, that in which the successful worker himself worked, and the second, that in which he or his followers desired other students to work," or the new and the old systems of education in logical and dogmatic teaching; the new ideal of Education and the methods adopted to realise it are treated at length with numerous examples.

There is an interesting article on "Hypnotism as a Means of Education." It is familiar to every psychologist and teacher that suggestion plays an important part in the education of children, and it has been proposed by some that hypnotism could be used in schools. It is desirable that this should not be resorted to except in very rare cases when all other means at the disposal of the teacher have no desirable effect on the pupil and its practice must be restricted to a few, since the hypnotised student will become a mere tool in the hands of such teachers.

It contains the editorial comments on "Another Report of the Royal Commission on the Work of the Charity Commission." The Departmental Committee has before their eyes 'the adoption of a policy of State supervision over Secondary Education.' The Royal Commission recommends that further schemes should be initiated by the Local Authority and not the charity commission. Hence we may reasonably anticipate

an early reduction in the number of Charity Commissioners. In any English county adopting a policy of organizing secondary education, the funds derived from charity sources for new schools will be very small compared with those contributed directly or indirectly by the local taxation, grants, and the rate, &c., and the organization of the old schools need not increase the present work of the Commissioners. Hence the rate-payers' representatives should have the largest voice in the matter.

Under 'Correspondence' appears a letter on the School Boards which contains some opinions found on the working of the School Boards during the past quarter of a century of its existence. The main defects in the system are.

(1) Minimum of Education is obtained with the maximum of cost and friction.

(2) experts have very little part in the supervision of the enlarged system of Elementary Education.

(3) the Parliament, in the Act of 1870, which did not entitle the denominational schools to support from the rates committed a serious blunder, that it did not utilize from the first, the denominational schools which reached a certain standard of efficiency in teaching. Consequently from 1870 till to-day many supporters of denominational schools have unquestionably sought and obtained election to School Boards, chiefly for the purpose of preventing the erection of more School Boards and making those School Boards which have been built as unharmful as possible to denominational schools, since otherwise these schools would naturally come to an end in the presence of better furnished Board Schools with a staff larger and better paid.

THE EDUCATIONAL TIMES, April, 1896.—The question of admitting women to the Universities of Oxford and Cambridge is occupying many minds, and various have been the views on the subject. Some have suggested that a woman's University would be a desirable and possible substitute for the admission of women to Oxford and Cambridge. Some who have had in some cases a considerable experience of teaching and lecturing to women, have raised no objections and expressed no fears on this score. The arguments against their admission generally put forward at Oxford are these

(1) "that it is a university for men and they do not mean to have any woman come to spoil it.

(2) the Education given in Oxford, though so excellent for men that they cannot contemplate the least change, would be absolutely injurious to women.

(3) it is to be feared that the movement could not stop with the

granting of degrees to women. If this were done, women must afterwards be admitted to the government of the University; and they would insist on recasting the curriculum and otherwise modifying the system to adopt it to the need of women.

(4) and a system which had been shaped for men students cannot be so recast as to adapt it to men and women without fatally impairing its strength."

The first is merely sensational; the 2nd and the last have some psychological foundations and therefore could not be easily demolished, while the 3rd is possible and is like the 4th in its result.

HARMONY, March and April 1896.—This number contains the concluding portion of "The Physical Basis of America" a very able article intended to answer the question 'What is the secret of the phenomenal progress of America' within the last one hundred years, by a series of references to the statistics pertaining to the various resources of America, and its consequent financial, political and social relations with the other civilized countries of the world; and the writer exhorts us to look into the mental and moral peculiarities of the people to evolve the potent factor in bringing about this grand civilization in the Western continent. The next important article is an account of the life and thoughts of Emerson. This great writer is estimated on the great influence that he exerted by his writings and private life, and is looked at from every aspect and more as a unitarian, and great prominence is given to his "spiritual insight and grasp of great moral principles" in which respects he is placed above all other writers.

THE EDUCATIONAL REVIEW, London, April 1896.—The Journal opens with a very good article on the qualifications of teachers and impresses the fact that the time is gone by when it was thought that anybody can be a schoolmaster. The qualifications insisted on are brought under five heads. The teacher, it urges, should produce evidences that (1) he has a thorough knowledge of the subject; (2) he has a good general education; (3) he has been trained and is proficient in the art of teaching; (4) he has social and physical advantages; and (5) he has the moral qualifications for being a teacher. If managers of schools would only be impressed of the value of the above, surely there must come on a change in our schools. The article on a scheme for an Educational Fund will, it is hoped, be read with much interest by the members of the Madras Teachers' Guild. Rationality in Science Teaching and Modern Language Teaching forms amongst others very interesting and useful reading.

THE BARODA COLLEGE MISCELLANY, April 1896.—In the article under the title "The Present Outlook of India" attempt is made to answer the question, "Is the present condition of India satisfactory," by reference to the various aspects of the Hindu Society and its aspirations, and the conclusion is arrived at that great efforts are still due from educationists, social reformers and others to raise India to the requisite level of attainments and mental courage.

The next article "Pilgrim Fathers from the East" points out that the ancient Greek names have all been derived from corresponding Eastern names, and goes to support the fact that the new colonizers adopted in their colonies the names &c., of the parts from which they emigrated. The writer gives a number of "word" histories to support the view. The other articles, *viz.*, The mode of measuring time, Indian Society at present, The Dread of Death contain useful matter worth perusal. The portion in English on the whole contains much readable matter.

THE VIVEKA CHINTAMANI, March 1896, contain matter for pleasant reading. There is an interesting fairy-tale and a biographical sketch of Grace Darling, illustrated by her portrait. There is also a photo-typed likeness of H. E. Sir Arthur Havelock. We are glad to notice that such illustrations are becoming a regular feature of this journal. We regret however to find that the monthly prizes instituted in connection with the journal with the object of developing the observing powers of children, have been discontinued since January last.

EDUCATIONAL NOTES.

There is probably no other city in the world where such an annual increase of population has to be provided for as in Chicago. The city is growing at the rate of 65,000 yearly, and 13,000 of this number are children of school age. Fifteen new buildings are imperatively required to accommodate this increase, and fourteen more for the nearly equal number now housed in rented rooms. But, fortunately for Chicago, her board of education does not have to cope with this tremendous problem with the feeble means that are at the disposal of too many other cities. It is not dependent on councils for school funds in Chicago, but has been empowered by the legislature to make a five per cent levy on real estate in the city, two-fifths of which may be used for salaries and three-fifths for building purposes—"a sum amply sufficient to provide wholesome and comfortable accommodation for every child of school age in the city."—*Boston Journal of Education.*

Studying Animals.—The points to be aimed at in the study of animals are well set forth by the New Jersey normal school faculty. It is a pleasure to present the case as stated by Dr. J. M. Green and his associates :—

1. The development of the powers of observation and perception.
2. The enlargement of the student's vocabulary and powers of description.
3. The education of the student in the line of scientific research, and that with the most readily obtained and least expensive of apparatus and materials.
4. The gaining of technical skill in the manipulations of dissections.
5. Giving the pupil such knowledge of the animal forms as will be most useful to him in his work of life as well as the enjoyment of his leisure.
6. Giving the student an appreciation of the beauty, variety, and wonders of God's created works.

* * *

How some Teachers Waste Time.—By—1. Ignorance in organizing classes. 2. Giving unnecessary directions. 3. Coming to school without a definite plan of work. 4. Speaking when pupils are not giving attention. 5. Giving orders and immediately changing them. 6. Speaking too loud and too often. 7. "Getting ready" to do something. 8. Allowing pointless criticisms, questions and discussions. 9. Asking pointless wandering questions and going off on "tangents" in recitations. 10. Explaining what pupils already know. 11. Explaining what pupils should study out for themselves. 12. Repeating questions. 13. "Picking" at pupils. 14. Repeating answers after pupils. 15. Giving muddy explanations to conceal ignorance. 16. Using the voice where the eyes would be more. 17. Asking questions that can be answered by 'yes' or 'no.' 18. Failing to systematize knowledge.—*Educational Record.*

* * *

Universities are becoming quite an instrument of physical pain. Recently, by 79 votes to 63, the University of Oxford has solemnly declined to allow the Earl of Berkeley to qualify for a degree by "residing" within the technical $1\frac{1}{2}$ mile limit during the day time, but not during the night. The statutes say "pernoctation, and convocation insists that Lord Berkeley shall pass his nights in Oxford or else forfeit his right to a degree." The Earl is ready to study in Oxford all the day but because his health compels him to sleep outside the town, upon Boar's hill at night, his presence in day-time is to go for nothing.—*The Madras Standard.*

* * *

The students of Princeton University, New Jersey, burnt the King of Spain in effigy and dragged the Spanish flag through the street, and tore it up in the centre of the college quadrangle.

The intelligent parents and the wise teachers of this generation cry against the helplessness of children who are surrounded by ready-made toys. The dolls whose eyes open and shut, whose joints are perfection, whose hair can be brushed and braided or curled, whose wardrobe is complete even to fan and gloves, leave no margin for the free play of imagination which, in the absence of the ready-made toys, used to invest a crooked stick with all the charm of a horse, mere stones with life and power of speech. The music boxes which yield tune after tune upon the simple motion of a small handle, have displaced the reed and the pipe (involving activity) and with it the joy in creation which accompanies it. "I often pity the only child who is deluged with playthings by grandmother, aunts, and loving parents knowing that he must miss the delights of making and imagining which were the inheritance of all children a few generations ago." The contagion spreads to the schoolroom and we are strongly convinced that much of the work in the schoolroom can be better done without too much ready-made illustrations. "In the teachers' ability to make much of little, to contrive ingenious methods of illustration, and original plans for occupation or the presentation of lessons, we realize this power which, after all, marks the distinction between the real teacher and the imitator, the artist and the artisan."

* * *

How Sir E. Arnold was Caned.—Sir Edwin Arnold, in the volume of autobiography which he has just published, re-tells the story familiar to those who know him, of how, as master of the Birmingham Grammar School, he was caned by one of the boys :—The class was engaged on Cicero, some disorder occurred near the master's chair, and seizing the cane he " gave a hasty cut upon the too tempting back of one youth who seemed to be the offender." " If you please, sir," said the boy, squirming, " I did nothing. It was Scudamore that kicked me in the stomach underneath the desk." The statement was true. Scudamore had demanded from his neighbour, quite illegitimately the explanation of an obscure passage, and not being attended to had taken this much too emphatic means of enforcing attention. Having called the class up, I said to the doubly wronged boy, who was still rubbing the place, "It is I who am most to blame, for having dealt you an undeserved blow. Take that cane, and give it back to me, as hard as you got it." " No, sir," the lad answered, " I can't do that.," The whole great schoolroom was now listening, masters and all. I insisted. " Jones, you must obey me ; and if you disobey, I am sorry to say I shall make you write out that page of Cicero three times, staying in to do it. " Whether it was desperation at this dreadful alternative, or the sparkling eyes of his class-fellows, evidently longing to have the good luck themselves of licking a master,

that suddenly inspired Jones, I know not. What I do know is that he reached forth his hand, took the cane, and dealt me no sham stroke, but the severest and most telling cut over my shoulders. I had no idea that the ridiculous instrument could sting, as it did, like a scorpion. Rubbing the place in my own turn, I managed to thank Jones for his obliging compliance, and then said to him, " Break that detestable weapon across your knee, and throw it out of the window. Never again will we have anything to do with such methods here." Sir Edwin Arnold adds that corporal punishment is, in his view, a cowardly and clumsy expedient, and that " he who cannot teach without the stick had better get some other business." Which is, after all but a counsel of perfection for the Board School teacher with a class of fifty or sixty.

* * *

Somewhere about forty years ago, says the *Western Morning News* a leading West End goldsmith entered a silversmith's shop in the City, and found there a boy behind the counter deeply engaged in the study of a book. The goldsmith was an old-fashioned man, with a great belief in physical activity, and he was irritated on looking round the shop to see that some of the plate ranged about it needed cleaning. So he rebuked the boy for his idleness, and told him that he ought to be ashamed to waste his time in reading when his father's goods needed polishing. The lad, however, was unabashed. The polishing went undone, the study was persisted in, with such good effect that the lad became Solicitor-General and a leading advocate of the day. His name is Sir Edward Clarke, Q. C., M.P.

INDIAN NEWS.

BOMBAY.

There is a great dearth of Educational news owing to the Hot Weather vacation having intervened since our last number. The Syndicate have appointed the Hon'ble Mr. Justice G. M. Ranade, M.A., LL.B., C.I.E., Mr. E. Giles, M.A., Educational Inspector in Sind, and Professor O. V. Muller, M.A., to draft a scheme for the new M.A. History course; while Principal F. Selby, M.A., Professor W. H. Sharp and the Rev. H. Bochum, S.J., are to draw up the syllabus for the Philosophy School.

* * *

This action has been taken with more promptness than is usually in such exalted circles and if the committees act equally promptly there seems some hope of the new courses being sanctioned by the Senate during the Monsoon Term, in which case they will be open to M.A. candidates for 1897.

The Hon'ble Mr. Justice J. Jardine has gone on six months leave and as he has not yet decided whether to return to India or not, he has preferred to retain the office of Vice-Chancellor. All discussion as to his successor is therefore at present superfluous. The result however will be that the University of Bombay will have no Vice-Chancellor in residence during the most important half of its academic year.

* * *

This selfish absenteeism ought to be discouraged in every way, in fact as regards the Vice-Chancellor the rules ought to compell residence in Bombay during term time. Our Chancellor is meant to be little more than an exalted figure-head, but even he is available on an emergency, whereas our Vice-Chancellor is the prime-minister and actual leader of the University and as such his presence is absolutely essential. What then can we say of a Vice-Chancellor who goes to England for six months, leaving it even uncertain whether he is ever coming back ?|

* * *

This is not the only case. Dr. K. N. Bahadurjee, M.D., apparently was elected Dean of Medicine and then immediately departed for England; thus leaving that storm and strife-ridden Faculty without a head.

* * *

The April number of the *Deccan College Quarterly* has just appeared. This enterprising publication has now reached No. 4, Vol. IV., and is to be congratulated on its continued vitality. Its articles are often interesting and as they are written by students of the College they also serve another purpose, acting as a mirror in which we see student life and thought clearly reflected. The Journal should however devote more space to College news and not consign this important part of a College Magazine to a few meagre 'Notes'.

* * *

We hear that the first examination for the Provincial Service under the new rules will be held early next year. The full syllabus will be published shortly and will, as we have before stated, be an eye-opener to those who have in ignorance denounced the low-standard that they assumed Government intended to adopt.

MADRAS.

The Madras Government has invited the opinions of the following officers regarding the bill to amend the Indian Reformatory Schools Act sent by the Goverment of India:—The Hon'ble Judges of the High Court, the Advocate-General, the Director of Public Instruction, the Inspectors-General of Police and Jails, the Presidency Magistrate, the Commissioner of Police, and Messrs. Le Fanu, G. S. Forbes, Tremenhere, Horsfall, Dumergue and Wynne.

The following gentlemen have been appointed by Government to be members of the Madras Text-book Committee :—The Rev. W. H. Campbell, M. A., London Mission Society, Cuddapah; the Rev. D. Downie, D.D., American Baptist Mission, Nellore; and the Rev. D. Anantam, B. A., C.M.S. High School, Bezwada.

* * *

We regret to say that Mrs. Brander, Senior Inspectress of Girls' Schools, was ordered to Europe by the Medical Board for twelve months. She left by the Clan Mackintosh for London on the 21st April 1896. We wish her a speedy recovery, and a pleasant holiday.

* * *

Mr. E. Marsden, Inspector of Schools, Central Circle, has been appointed President of the Board of Examiners for Teachers' Certificates in the place of Mr. Bickle, who has proceeded to Europe. Mr. J. H. Stone, acting Principal of the Presidency College, succeeds Mr. Marsden as Secretary.

* * *

Mr. C. A. Paterson, Principal of the Church of Scotland Mission College, Madras, left by the mail train on the 30th April 1896 for England on twelve months' furlough. He was garlanded at the Central Station by the members of his staff, and the students of his College.

* * *

The Hon'ble Dr. Duncan, Director of Public Instruction, has just returned from a tour to the North Arcot District. In addition to visiting the various schools in the district during his tour, he distributed the prizes at the American Mission High School, Vellore, on the 29th April 1896.

* * *

The Madras Teachers' Guild has been very busy during the last two months. On the 17th April 1896, M.R.Ry. Rao Bahadur V. Krishnamachariar read a very thoughtful and suggestive paper on the proposed Provident Fund for Teachers. On the 28th April 1896, Major Love conducted about 80 members of the Guild around the workshops of the Engineering College. Mr. J. H. Stone thanked Major Love on behalf of the Guild for his kindness. On the 4th May 1896, two papers were read; one by Miss Ive on "The Teaching of Arithmetic," and the other by Mr. T. Denham on "The Teaching of Geography."

* * *

The Hon'ble Dr. Duncan, Director of Public Instruction, accompanied by Mr. A. A. Hall, and Mr. H. S. Duncan, the Principal and the Vice-Principal of the Teachers' College, respectively, visited the two new Training Schools in Black Town on the 1st May 1896. He seems to have been much pleased with the working of the two schools. The Hindu School has 25 normal students and 197 boys on the rolls, and the Pan-

chama School has 17 normal students and 97 boys. He next visited the Black Town Industrial School, and saw the pupils there at work. He afterwards inspected the new buildings of the Law College.

* * *

On behalf of the Presidency College Tamil Sangam, the Rev. J. Lazarus, B.A., delivered a lecture on the " Tamil Alphabet " on Wednesday, the 29th April 1896, at the Presidency College. M.R.Ry. M. Seshagiri Sastriar M.A., presided on the occasion.

* * *

At the Spring Convocation of the University of Edinburgh, held on the 10th ultimo, with Principal Sir William Muir, Vice-Chancellor of the University, in the Chair, the degree of Doctor of Laws was conferred *honoris causâ* on the Hon'ble David Duncan, M.A., D.Sc., Director of Public Instruction, Madras. At the conclusion of the conferring of Degrees on the candidates who were present, Professor Sir Ludovic Grant said that, in the case of Dr. Duncan, the degree must be conferred *in absentia*, as Dr. Duncan was prevented by duties which held him in a distant country from appearing amongst them. Proceeding, Professor Grant said:—" The sphere of Dr. Duncan's activity is the Madras Presidency in India, where his zealous and wise administration has greatly contributed to the advancement of education. After distinguishing himself as a student of Philosophy in this University, Dr. Duncan lent his services to Mr. Herbert Spencer in the preparation of his Tables of Descriptive Sociology, and while engaged in that task, he was in 1870 tranferred to the Chair of Logic in the Presidency College, Madras. Since that date, he has filled many important academic and administrative offices. Of these, it will be sufficient to mention that of Principal of the Presidency College, and the responsible and honourable post of Director of Public Instruction. Work such as Dr. Duncan has achieved, and is achieving is of imperial importance. That such work should be carried on by a former alumnus is a ground of gratification and pride to this University, who desires to mark her appreciation of Dr. Duncan's brilliant labours by bestowing on him the highest honour in her gift." We heartily congratulate The Hon'ble Dr. Duncan on his new degree, and we feel sure that we are expressing the feelings of the whole of the Educational Department when we say that the Department is honoured as much as Dr. Duncan on his receiving this great distinction.

* * *

With the departure of Mr. Bickle for England on the 22nd April 1896, the connection of the last of the trained national schoolmasters sent out by the Secretary of State in consequence of the Despatch of 1854 ceased. Messrs Fowler, Moss, and Bickle and men of that class

have done most useful work in this Presidency as Inspectors of Schools, and in perfecting the machinery for the training of teachers. In fact, at the present time, chiefly owing to the ability and energy of these men, the training system in this Presidency is equal to that of any country in Europe. Mr. Bickle was an excellent Inspector, fond of work, very conscientious and thoroughly able in consequence of his long experience, and of his technical knowledge to gauge accurately the prosperity of a school; he carried with him a large sympathy, and a thorough knowledge of all the details necessary to make an Inspecting officer's work perfect. On retirement from the Educational Service in 1890, he was elected Registrar of the Madras University, which office he filled with distinction. For many years, he was connected with the School Management Examinations, and held the office of Chairman of the Board of Examiners for Teachers' Certificates, Madras, since its inception. He will be especially missed on this Board, composed as it is of men who have never had Mr. Bickle's special training or long experience. We trust that he will arrive home safely, and enjoy many years of well-earned rest.

* * *

We understand that the Secretary of State has sanctioned the scheme for the re-organization of the Upper Subordinate Service of the Educational Department, and his orders are shortly expected. We trust that the Madras Government will sanction the scheme for the re-organization of the Lower Subordinate Service as early as possible.

* * *

We are in receipt of a copy of the Annual Report of the Teachers' Association at Trichinopoly for 1895. The Report shows that the Association has been doing good work during the year, and that the members of the Association were chiefly teachers employed in the various colleges and schools situated in the town. The financial condition of the Association appears to be very satisfactory, the balance to the credit of the Association being Rs. 182-4-3.

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In consequence of the Director of Public Instruction requiring more room for his office, the books of the Madras Literary Society are being taken to the new premises of the Connemara Library in the Pantheon Road, Egmore.

* * *

Mr. M. T. Quinn, Principal of the Pachaiyappa's College, Madras, who left home on furlough twelve months ago has finally decided not to return to Madras. Mr. Lepper, his locum-tenens, is likely to be confirmed as Principal.

THE MADRAS TEACHERS' GUILD

Registry of Teachers.

The Secretaries of the Madras Teachers' Guild have addressed the following Circular letter to the Principals and Heads of Colleges and Schools in this Presidency :—

Royapettah, Madras.
May 1*st*, 1896.

Dear Sir,

As you will see by the enclosed form, the Madras Teachers' Guild has established a Registry for teachers seeking employment. We should be very glad if you would aid in making this known amongst teachers. Also it will be a great help if you would in the case of any vacancy in your institution inform us of the fact. We will then send you the particulars concerning any teacher who has applied to us who seems likely to suit you. We hope in this way not only to help teachers to find suitable employment but also to enable managers to secure the best available candidates.

RULES FOR THE REGISTRY OF TEACHERS.

The following are the rules approved by the Guild for the registry of teachers seeking employment :—

(1) Every candidate who wishes to secure employment as a teacher shall send in his application in the prescribed form to the Secretaries.

(2) The application shall be accompanied with a registration fee of Re. 1, in the case of members of the Guild, and of Rs. 3 in the case of non-members.

(3) Every application shall further be accompanied with three testimonials :—one of character, one of general educational qualification, and one of professional qualification. The first testimonial must be from some responsible person and must be countersigned by two members of the Guild.

(4) The Secretaries shall be empowered to take such action as they may consider desirable with a view to securing suitable employment for those from whom applications have been received.

FORM OF APPLICATION TO BE FILLED IN BY CANDIDATES WHO WISH TO SECURE EMPLOYMENT AS TEACHERS THROUGH THE GUILD.

Name in full and address.	
Age and date of birth.	
Highest University or General Educational Test passed by the candidate with details and with date.	
Vernacular language or languages in which the candidate has passed, and Science division taken up by the candidate for the B. A. degree examination.	
Whether trained or not. If trained in what institution and for what period.	
Whether passed the L. T. or any other Teachers' Certificate examination with date.	
Whether the candidate has been employed as a teacher previously; if so periods of service in the institution or institutions* in which he has been employed.	
The nature of the appointment he wishes to have.	
The nature of the institution he wishes to be employed in.	
The district or locality in which he wishes to serve.	
The minimum salary he expects to receive.	
Any other facts bearing on his application he wishes to communicate.	

(Name in full.)

(Address.)

Date

* In case the candidate has served as a teacher previously he should produce copies of testimonials from his former employers.

The Secretaries will be glad to receive applications from qualified teachers for the following vacancies.

Wanted a half-time Mathematical graduate next session for a second grade college in Madras.

Wanted a First Form Teacher in a High School in Madras. Christian preferred.

The Secretaries have received an application from a qualified L. T. and will be glad to communicate with Managers who may wish to enquire about him.

PUNJAB.

The Punjab University has arranged for a course for the degrees of Bachelor and Doctor in Science, which wholly eliminates a classical language, and makes all the elective subjects branches of physical science. English is compulsory up to the Bachelors' Examination.

* * *

To the Education Department, and to those directly or indirectly connected with it, the event of the past month has undoubtedly been the meeting of the General Education Conference. From the brief *resumé* given below of the discussion which took place on some of the questions it will be seen that the points debated were of considerable importance; and it is not unlikely that they will prove of interest to educationalists in other parts of India.

Question I. Revision of the grant-in-aid rules for Public Schools, so as to make the award for schools of more than five years' standing, at intervals of three or five years, instead of annually, the grant during the period to be at the rate per cent. of the average attendance fixed at the time of the award, and to be continued on the ground of continued efficiency as tested by a general inspection of the school.

Proposed by Lala Amolak Ram, and seconded by Lala Sheo Lal, that the proposition be adopted as it is, *viz.*, that the grants be fixed at intervals of five years.

Amendment proposed by Pandit Ram Lachhman, seconded by Lala Kundan Lal, that the grants be fixed for 3 years instead of 5.

A second amendment proposed by Mr. Cope, seconded by Mr. Knowlton, that the rules for grant-in-aid to Public Schools be revised so as to make the award of grant-in-aid for schools of more than five years' standing depend on the amount of average attendance in each department for the previous year, provided that the efficiency of the schools as tested by summer examination in all classes other than the standard classes be maintained.—(*Lost.*)

Proposed by Rai Bahadur Lala Piyare Lal, seconded by Mr. Harvey, that the rules for determining grants to aided schools should remain as they are at present, the revised rule which forms part (1) of Question I. on the list of business, though it involves a saving of time and labour to inspecting officers is not calculated to maintain the efficiency of schools.—(*Carried.*)

It may be noted that the proposer and seconder of the amendment thus carried are two old and experienced Inspectors, the former having retired a couple of years ago, the latter still working the large and important Delhi Circle.

* * *

Under the same question the following propositions were then considered together. Revision of the grant-in-aid rules for Public Schools :—

(1) So as to alter the rules for the different kinds of grants according to the figures of the past five years.

(2) So as to make a fraction of the grant depend upon organization, discipline, and the suitability of their accommodation and the appliances provided.

Proposed by Mr. Cope, seconded by Pandit Ram Lachhman, that the propositions as they are be accepted, provided that the attendance grant does not exceed two-thirds of the instruction grant, and the saving thus made be utilized in awarding grant for organisation, discipline and the suitability of the accommodation and appliances provided. Amendment proposed by the Rev. Mr. Allnutt, seconded by Mr. Muhammad Shah Din, that, in the event of the grant being withheld, the reasons for doing so to be stated explicitly in the log book.

The amendment was put to the vote and carried.

(3) Proposed by Miss Francis, seconded by Lala Kunj Behari Thapar, that the attendance grant rules for the Girls' Schools should remain as they are.

(4) Proposed by Rai Bahadur Lala Piyari Lal, seconded by Dr. Ewing, that the following gentlemen should form themselves into a Sub-Committee to determine what deduction should be made from the rates for attendance grant to Public Schools to compensate them for organisation, discipline, &c., and what rates should be fixed for grants for organisation and discipline in the different departments :—Rev. Mr. Allnutt, Lala Narain Das, Lala Sheo Lal, J. Harvey, Esq., Khawajah Yusaf Shah.

Question II (5)—Revision of the percentage of scholars in girls' schools eligible for scholarships under Articles 364 and 365.

Proposed by Rai Bahadur Lala Piyari Lal, seconded by Lala Fateh Chand, that the value of the Upper Primary scholarships be retained but that of the Middle School scholarships be reduced.

Amendment proposed by Dr. Ewing, seconded by Lala Kunj Behari Thapar, that the value of the Upper Primary scholarship be Re. 1 in the first-year, and Re. 1-8 per mensem in the second-year, and that of the Middle School scholarships be reduced from Rs. 3 to Rs. 2 per mensem, the Inspecting officers having discretion to award Rs. 3 where there is a reasonable prospect of the scholars becoming teachers or medical students. Also that in the case of those where there is a reasonable probability of the above kind the value of an Upper Primary scholarship be Rs. 2 per mensem.—(*Carried.*)

It was unanimously agreed by the Conference that the percentages remain as they are.

(6) As a corollary to the above, it was proposed by Miss Francis that the scholarships tenable under Article 380 be granted for two years instead of one, but reduced from Rs. 6 to Rs. 3, and from Rs. 8 to Rs. 4 per mensem.—(*Carried nem com.*)

No satisfactory solution of Question III. (7) could be arrived at, even after considerable discussion, and refuge had at length to be taken in a Sub-Committee. The question was:—Should the passing in some optional subject or subjects be made compulsory for both the Lower and Upper Primary Standards?

Proposed by Lala Sheo Lal, seconded by Pandit Ram Lachhman, that things should remain as they are.

The question was considered separately for the Lower Primary and Upper Primary standards.

Rai Bahadur Lala Piyari Lal, seconded by Lala Kundan Lal, proposed an amendment that in the case of Anglo-Vernacular and Vernacular Schools for boys, Object Lessons should be made a compulsory subject for the Lower Primary Examination, but that the amount of Urdu should be reduced by about one-half.—(*Lost.*)

The portion of the above proposal relating to the Lower Primary Standard was voted on and carried.

With regard to the Upper Primary standard the following amendments were proposed, all of which on being voted were lost;—

(8) Proposed by Lala Hans Raj, seconded by Lala Kunj Behari Thapar, that in the Upper Primary standard one of the following be added to the list of compulsory subjects:—

1.—Common things.

2.—Geography.

3.—Persian or Sanskrit, or Arabic, and no other optional subject be allowed excepting English in the case of Anglo-Vernacular schools.—(*Lost.*)

(1) Proposed by Rev. Mr. Allnutt, seconded by Mr. Cope, that for the Upper Primary standard, either Geography or common things be made compulsory, on condition that the number of optional subjects be reduced to three.—(*Lost.*)

(2) Proposed by Rai Bahadur Lala Piyari Lal, seconded by Lala Kundan Lal, that in the case of Anglo-Vernacular and Vernacular schools for boys, Persian should be made compulsory for the Upper Primary Examination, but the amount of Urdu should be reduced by about one-half.—(*Lost.*)

The original proposition with regard to the Upper Primary Examination was then voted on and lost.

Proposed by Dr. J. C. R. Ewing, and seconded by Professor Oman, that the following gentlemen should form themselves into a Sub-Committee to consider the above :—E. Haden Cope, Esq.; H. T. Knowlton, Esq.; Lala Hans Raj; Rai Bahadur Lala Piyari Lal; Pandit Ram Lachhman.

Proposed by Bhai Gurmukh Singh, seconded by Lala Shiv Diyal, that as the above question is ultimately connected with No. 6 on the list of business, the latter as well may be referred to the above Sub-Committee.—(*Carried.*)

Proposed by Miss Francis, seconded by Lala Kunj Behari Thapar, that in Vernacular Girls Boarding Schools, alongside Needle-work, attention to Household Management be put as an optional subject.

* * *

Previous to the commencement of the work of the Conference, Mr. Sime, the President, performed a very interesting function. Rising, he addressed the gentlemen present, thus :—"Before entering on the special business for which we are met together, I should like, with your permission, to discharge a pleasing personal duty to one of my colleagues in the Education Department, who, for a number of years, has been an important member of our Educational Conferences." Then turning to Lala Sagar Chand, Inspector of Schools, Rawulpindi Circle, he continued :—"You have been in the Education Department now for close on thirty-two years. During the early part of that period you were mostly engaged in the schools of the province as Assistant or Head Master; and since 1877 you have served as Assistant Professor and Professor in the Lahore Government College, as Principal, for a time, of the Central Training College, and as Assistant Inspector and

Inspector of Schools. Your experience has been a very varied one; and in each capacity you have discharged your duties with such efficiency, zeal and conscientiousness as to establish not only the strongest claim to promotion in the Department to which you belong, but also to special consideration at the hands of Government. It is but fitting therefore, as well as gracious, that the Government of India should have conferred on you the title of Rai Bahadur; and it affords me very great pleasure to be the instrument of conveying to you, in the presence of so many colleagues and friends, the *sanad* conferring that title. I would ask you to accept our warm congratulations, with the hope that you may live long to bear the honour you have so completely deserved."

REVIEWS OF BOOKS.

ENGLISH VERSE FOR JUNIOR CLASSES, PART I. By J. L. Robertson, M. A., First English Master, Edinburgh Ladies' College. *William Blackwood & Sons.*

This is a neat little volume, of about 200 pages, containing some 3,500 lines of excellent poetry. It is "designed for pupils (English) between the ages of twelve and fifteen," and contains matter for a course of 18 months. The work is to consist of two parts, of which we have now received the first. This first part "presents ten poems of ten famous poets from Chaucer to Coleridge," and "brings the reader to the close of the eighteenth century." The poems from which the selections are made, are the following: Chaucer's 'Canterbury Tales', Spencer's 'Færie Queene', Milton's 'Comus', Dryden's 'Ode for St. Cecilia's Day,' Pope's 'Rape of the Lock', Thomson's 'Seasons', Gray's 'Elegy', Goldsmith's 'Deserted Village', Cowper's 'Task' and Coleridge's 'Ancient Mariner'. "Each poem is introduced with some notice of its scope and qualities. . . . Notes are appended to explain and illustrate the text; and when the text is too long to be presented entire, summaries in prose are given to connect and carry on the narrative with a view to the preservation of the unity of the poem."

The editor has carried out his design to a successful result, and has given us much "that is best and most characteristic of English Poetry." But his selections, though intended for "Junior" pupils in England, can be studied to advantage only by such Indian students as have completed their collegiate course. The arrangement of the poems is purely chronological, and poems difficult of comprehension to an Indian student precede, therefore, such as are comparatively easy. The volume is not, in consequence, suited to serve as a text-book for any special class of our

students. But we welcome it, however, for the course of excellent reading it affords. The notes are brief and accurate, and the summaries that serve to link together the selected extracts from each poem are to the point, and the performance is all that can be desired.

The Madras Presidency College Calendar, 1896.

The handy volume bearing the above title gives full information regarding a large number of subjects connected with the College, such as, the programme of studies for the current year in the several departments of languages and sciences, rules relating to fees, attendance, admission and withdrawal, the library, reading room, gymnasium, sports, &c. The chapter dealing with endowments is specially interesting, as it shows the large sums of money set apart by the various donors for the encouragement of particular branches of learning, and thus gives the public an insight into the popularity of the institution and the wide range of sympathy it has been able to enlist on its behalf. A clear knowledge of the conditions regulating the award of the various prizes and scholarships is likely to create keener competition among the students, though we are inclined to think that in the present state of Education in Southern India, male pupils in College classes hardly require such incentives. The list of Proficients contains the names of several talented men, dead and living, who were once its *alumni*, and who afterwards distinguished themselves in their respective walks of life. The names of Rajah Sir T. Madava Row, Sir T. Muthusami Aiyar, C. Rangacharlu, V. Rama Aiyangar, A. Seshiah Sastriyar, C. Ranganadha Sastriyar and V. Sadagopacharlu are instances in point. The later generation of students may well be proud of belonging to an institution that has produced distinguished statesmen, eminent judges, able lawyers and a host of others who have brought credit to their *alma mater*. There are, at the end, four appendices, the first of which is a reprint from the University Calendar of the syllabuses of the F.A., B.A., and M.A. Examinations, the second contains lists of text-books prescribed by the University, while the third and fourth deal with the rules of the Associations formed for the physical or mental culture of the students, pre-eminent among them being the Presidency College Literary Society, which has, of late been doing so much useful work. The book will be found very useful by the past and present students of the College. It is bound in white linen like the University Calendar, and the get-up does much credit to the Lawrence Asylum Press, Mount Road.

MATHEMATICS.

Solutions of Questions.

136. If p_r denote the co-efficient of x^r in the expansion of $(1+x)^n$, prove that

$$p_1 - \frac{p_2}{2} + \frac{p_3}{3} - \ldots . (-1)^{n-1}\frac{p_n}{n} = 1 + \tfrac{1}{2} + \tfrac{1}{3} + \ldots . \tfrac{1}{n}. \quad -[\textit{Todhunter.}]$$

(1) *Solution by A. Radhakrishna Aiyar, B. A., & G. Rama Aiyengar, B. A.*

$$\text{Now } p_1 - \frac{p_2}{2} + \frac{p_3}{3} - \ldots \ldots \frac{p_n}{n}(-1)^{n-1}$$

$$= n - \frac{n(n-1)}{2\underline{|2}} + \frac{n(n-)(n-2)}{3\underline{|3}}, \ldots \ldots$$

Denoting this series by S_n, we have

$$S_{n+1} = n+1 - \frac{(n+1)n}{2\underline{|2}} + \frac{(n+1)n.(n-1)}{3\underline{|3}} - \ldots .$$

$$\therefore \quad S_{n+1} - S_n = 1 - \frac{2n}{2\underline{|2}} + \frac{3n(n-1}{3\underline{|3}} - \ldots \ldots$$

$$= 1 - \frac{n}{\underline{|2}} + \frac{n(n-1)}{\underline{|3}} \ldots \ldots$$

$$= \frac{1}{n+1}\left\{1 - (1-1)^{n+1}\right\}$$

$$\therefore \quad S_{n+1} = S_n + \frac{1}{n+1}, \text{ and } S_1 = 1. \quad \therefore \quad S_2 = 1 + \tfrac{1}{2}\,; \quad S_3 = 1 + \tfrac{1}{2} + \tfrac{1}{3}\,;$$

$$\text{and} \quad S_n = 1 + \tfrac{1}{2} + \tfrac{1}{3} + \ldots \ldots \ldots \tfrac{1}{n}.$$

(2.) *Solution by V. Ramaswami Aiyar, M. A.*

Let $x = 1 - y$; then

$$1 - x^n = 1 - (1-y)^n = p_1 y - p_2 y^2 + p_3 y^3 - \ldots \ldots \pm p_n y^n.$$

Removing the factor $1-x$ equal to y, we have

$$1 + x + x^2 + \ldots . + x^{n-1} = p_1 - p_2 y + p_3 y^2 - \ldots \pm p_n y^{n-1} \ldots (\text{A}).$$

Integrating both sides from $x=0$ to $x=1$, the result is

$$1 + \tfrac{1}{2} + \tfrac{1}{3} + \ldots \ldots + \frac{1}{n} = p_1 - \tfrac{1}{2}p_2 + \tfrac{1}{3}p_3 - \ldots \ldots \ldots \pm \frac{1}{n}p_n.$$

[*Note.*—Integrating (A) from $x=0$ to $x=x$ we see that if $x=1-y$.

$$x + \frac{x^2}{2} + \frac{x^3}{3} + . + \ldots . + \frac{x^n}{n} = p_1(1-y) - \frac{p_2}{2}(1-y^2) + \frac{p_3}{3}(1-y^3)$$

$$- \ldots . \pm \frac{pn}{n}(1-y^n).$$

Removing the factor x equal to $(1-y)$,

$$1 + \frac{x}{2} + \frac{x^2}{3} + \ldots + \frac{x^{n-1}}{n} = p_1 - \frac{p^2}{2}(1+y) + \frac{p_3}{3}(1+y+y^2) - \ldots .$$

Now integrating from $x=0$ to $x=1$ we have,

$$\frac{1}{1^2}+\frac{1}{2^2}+\frac{1}{3^2}+\ldots+\frac{1}{n^2}=p_1-\tfrac{1}{2}p_2\,(1+\tfrac{1}{2})+\tfrac{1}{3}p_3\,(1+\tfrac{1}{2}+\tfrac{1}{3})-\ldots\ldots$$

$$\pm\frac{1}{n}p_n\left(1+\tfrac{1}{2}+\ldots+\tfrac{1}{n}\right)\Big].$$

(3.) *Solution by the Editor.*

The identity may be obtained by finding the nth *differential co-efficient* of $x^n.\log x$ in two different ways.

If $y=x^n\log x$, then $y_1=nx^{n-1}\left(\log x+\frac{1}{n}\right)$,

$$y_2=n(n-1)x^{n-2}\left(\log x+\frac{1}{n}+\frac{1}{n-1}\right),\text{ and so on.}$$

$$y_n=\underline{|n}\left(\log x+\frac{1}{n}+\frac{1}{n-1}+\ldots+\frac{1}{3}+\frac{1}{2}+\frac{1}{1}\right)\ldots\ldots\text{(A.)}$$

Again if $u=x^n$ and $v=\log x$

$$u_{n-r}.v_r=(-1)^{r-1}\underline{|n}/r$$

By Leibnitz's Theorem

$$y_n=(u\,v)_n=u_n.v+p_1u_{n-1}.v_1+p_2u_{n-2}.v_2+\ldots\ldots$$

$$=\underline{|n}\left\{\log x-\frac{p_1}{1}+\frac{p_2}{2}-\frac{p_3}{3}+\ldots\ldots\right\}\ldots\ldots\text{(B.)}$$

Equate (A) and (B).

149. (*K. C. Ramamurti.*) Find x, y, z from the following equations :—

$$\frac{x}{y}=\frac{19z-23}{23z-19};\quad\frac{y}{z}=\frac{17x-19}{19x-17};\quad\frac{z}{x}=\frac{23y-17}{17y-23}.$$

Note by V. Rawaswami Aiyar, M.A.

These equations are of the type (a, b, $c=23$, 19, 17)

$$\frac{x}{y}=\frac{bz-a}{az-b};\quad\frac{y}{z}=\frac{cx-b}{bx-c};\quad\frac{z}{x}=\frac{ay-c}{cy-a}.$$

The three equations are not independent, that is, any two of them being given, the third must follow; they are only equivalent to the two equations

$$\frac{yz+x}{a}=\frac{zx+y}{b}=\frac{xy+z}{c}.$$

There is therefore an infinite number of solutions which may be found by equating each of the above terms to an arbitrary constant t, and solving the resulting equations

$$yz+x=at,\quad zx+y=bt,\quad xy+z=ct.$$

Questions for Solution.

151. Find the locus of the pole of a chord of the hyperbola $xy=a^2$, which subtends a right angle at the point (h, k). What does the locus become when the point is on the hyperbola ?

152. (*V. Ramaswami Aiyar, M. A.*) Small smooth rings are fixed at the given points A_1, A_2, . . . A_n. A small weightless ring O is connected with n strings which respectively pass through the rings at A_1 A_2, . . . A_n and at their other extremities carry weights w_1, w'_2, . . . w_n, hanging freely. Show that there is only one position of equilibrium of the ring O; and also that for this position the expression $w_1 . OA_1 + OA_2 + w_2 . \ldots + w_n . OA_n$ has the least possible value.

153. (*K. K. Subramania Aiyar, B. A.*) $A_1, A_2, A_3 \ldots A_{2n+1}$ are the angular points of a regular polygon inscribed in a circle and O is any point on the circumference between A_1 and A_{2n+1}; prove that

$$OA_1 + OA_3 + OA_5 + \ldots OA_{2n+1} = OA_2 + OA_4 + OA_6 \ldots OA_{2n}$$

154. (*K. C. Ramamurti.*) Determine the terms of the series

$$7, 24, 64, 196, 696 \ldots$$

which are exactly divisible by 25.

155. (*A. K. S.*) Resolve into factors:—

$$(a^2b+b^2c+c^2a)^2+(a^2b+b^2c+c^2a)(ab^2+bc^2+ca^2)+(ab^2+bc^2+ca^2)^2.$$

156. (*K. J. Sanjana.*) Prove that the points of intersection of of each side of a triangle with the tangent to the circumcircle at the opposite vertex are collinear; and that the line of collinearity is the polar of the symmedian point with regard to both the circumcircle and the Brocard Ellipse.

157. (J. *Bhaskara Ramamurti.*) Given one angle and the sum of the sides containing each of the other angles, construct the triangle.

158. Sum to n terms:—

$$\tan^{-1}\frac{1}{1+1+1^2}+\tan^{-1}\frac{1}{1+2+2^2}+\ldots\tan^{-1}\frac{1}{1+n+n^2}$$

—[*Todhunter.*]

159. (*G.* Rama *Aiyengar B. A.*) Solve the equations.

$$x^2(y-z=a^3;\ y^2(z-x)=b^3;\ z^2(x-y=c^3.$$

160. The curve for which the ordinate and the abscissa of the centre of gravity of the area included between the ordinates $x=a$ and $x=x$, are in the same ratio as the bounding ordinate y and the abscissa x is given by the equation $a^3/x^3 - b^3/y^3 = 1$. —[*Mathematical Tripos.*]

NOTICE TO CORRESPONDENTS.

[*Mathematical contributors are requested* (1) *to write each Question and each Solution on a separate paper* (*otherwise when used for printing, the Editor has the trouble of entirely re-writing such articles*), (2) *to make their solutions as short as possible and* (3) *to write on one side only and not on both sides of the paper.*—EDITOR.]

NOTIFICATIONS.

BENGAL.

A question having been raised as to the extension of the Transfer Rules of the Arabic Departments of Madrasas in Bengal, it is notified that the transfer rules in force for high schools, with necessary omissions [*e. g.*, Rules X, XI, XII(*a*), the atter part of Rule I, the first half of Rule IX, and Note (1) to Rule XVI], are to be regarded as generally applicable to such institutions.

The rule requiring candidates from Upper Primary schools to have passed the Lower Primary examination before being admissible to the Upper Primary examination will take effect from the examination of 1897, and not from that of 1896, as previously notified.

BOMBAY.

List of appointments in the Educational Department, for the month of April 1896.

4th April 1896.—Mr. C. L. Divanji, is appointed substantive 8th Assistant Master, Nariod High School, subject to the lien of Mr. V. G. Dolol.

13th April 1896.—The following appointments are made in the B. J. High School Thana. Mr. R. K. Bhide, B. A., 5th Assistant to be 4th Assistant; Mr. R. L. Soman to be 5th Assistant on probation.

14th April 1896.—Mr. J. M. Vyas, is appointed 10th Assistant, Nariod High School.

20th April 1896.—Mr. T. K. Sadarangani, 5th Assistant, Hydrabad High School, is appointed 4th Assistant in the same school.

24th April 1896.—Mr. N. D. Mehta, is appointed 11th Assistant Master, Nariod High School.

28th April 1896.—Mr. K. B. Gokhole, P. E., is confirmed as 15th Assistant Master, Sholapur High School.

29th April 1896.—Mr. D. M. Givitrikod, is appinted Head Master, Practising School, attached to the Training College, Poona.

Volume I of 'Early Annals of the English in Bengal' is recommended by the Director of Public Instruction for College and school Libraries. The book is published by Messrs. Thacker, Spink and Co., Calcutta, and the price is Rs. 12.

Fasciculus I. of Poisonous Plants of Bombay with coloured illustrations by K. R. Kirtikar, F. L S., M. R. C. S., (Eng.) L. R. C. P., (Lond.), Surg.-Major I. M. S., Civil Surgeon Tanna, &c.; is recommended for College and School Libraries.

The book can be bought at Mrs. Radhabai Atmaram Sagoon's, Kalba Devi Road, Bombay and the price is six rupees exclusive of postage.

Locks. No. 1105. FINANCIAL DEPARTMENT.

Bombay Castle, 20th March 1895.

Letter from Superintendent of Stationery, No. 850, dated 3rd March 1896 :—

"I have the honour to submit herewith for perusal letter dated 1st February 1896, from the Agent, Pioneer Lock Works, Bombay, and to request that in the circumstances stated copy of the Agent's letter may be forwarded to all the officers to whom the orders of Government in Government Resolution No. 1558, dated the 14th May 1895, have been communicated."

RESOLUTION.—Copies of the letter from the Agent, Pioneer Lock Works, to the address of the Superintendent of Stationery should be forwarded for information to the Departments and officers to whom Government Resolution No. 1558, dated 14th May 1895, has been communicated.

G. S. CURTIS,
Under Secretary to Government.

R. H. PATUCK.

To

THE SUPERINTENDENT OF STATIONERY,
BOMBAY.

58, Custom House Road,
Bombay, 1st February 1896.

DEAR SIR,

As frequent inquiries have been made by officers as to the address to which orders for the country locks, which the Government has been good enough to authorize them to purchase, should be sent, I have the honour to request that you will be so good as to communicate my full address to the Head Offices in the Bombay Presidency.

I take this opportunity to say that I am also prepared to execute orders for all sorts of concelling and perforating punches (as supplied to the Stamp Office), surveying chains and other articles mentioned in the accompanying list.

Your faithfully,
R. H. PATUCK,
Sole Agent, Pioneer Lock Works.

MADRAS.

Mrs. I. Brander, Inspectress of Girls' Schools, leave on medical certificate for one year, under article 369 of the Civil Service Regulations.

Miss Emma Carr to act as Senior Inspectress of Girls' Schools during Mrs. Brander's absence on leave, or until further orders—to continue in charge of the Southern and Western Circles.

Miss Sarah Govindarajulu to act as Junior Inspectress of Girls' Schools and to have charge of the Northern and Central Circles during Mrs. Brander's absence on leave, or until further orders.